

3I270A / 3I270C

**533MHz FSB / VGA / LAN / Sound / Mini PCI /
PCIe mini card**

Intel Atom N270 . 533MHz FSB . All-in-one .

Sound . LAN . Mini PCI . PCIe mini card

SATA . 7 USB . CF

Multi-COM Board

NO. 3I270A / 3I270C

Release date: May . 05 . 2009

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User Manual edition 0.1, April. 21. 2009

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Warning !

1. Battery

Battery on board is consumables. We doesn't guarantee the life time of it.

2. Fanless solution with HDD

Please be aware of specification & limitation for HDD when fanless solution is implemented.

3. We will not give further notification if there is any change about the product information and the manual.

4. SATA does not support Hot SWAP

5. There would be 20% difference of WDT at room temperature.

6. Please make sure the voltage specification meet the requirement of the equipment before plugging into the power.

7. SSD has 2 types, commercial grade and industrial grade, which provide different read/write speed, operation temperature and life cycle.
Please contact sales for further information before ordering.

* Hardware Notice Guide

1. Before installing the power supply with this motherboard, please attach the 12V/DC (2 pin connector) of the adapter to motherboard first.
After that, plug the adapter power to AC outlet.
Always normally shut down the computer before you move the system unit or remove the power supply from the motherboard.
Please unplug the 12V/DC (2 pin connector) of the adapter from motherboard first.
Then unplug the adapter from the AC outlet.
Please refer to procedure from the photo 1
2. There will be high possibility to burn out the CPU if you change/ modify any parts of the CPU cooler.
3. Please wear wrist strap and attach it to a metal part of the system unit before handling a component.
You can also touch an object that is of ground connection or with metal surface if you don't have wrist strap.
4. Please be careful when you handle this product. Pay attention to & don't touch the sharp-pointed components at the bottom PCB .
5. Please pay attention to this: Remove or change any components from the motherboard will VOID the warranty of the motherboard you purchased .
6. Before you install/remove any components or make any jumper setting on the motherboard, please make sure to disconnect the power first.
(Please follow the instructions as of this guide)
7. Please only use single sided Mini PCI card, do not use the double sided Mini PCI card which is not suitable.
8. This does not support 16 bit mini PCI card
9. Please follow this instruction carefully when using the "POWERON after PWR-Fair" function.
When the DC power adaptor runs out of power, unplug it from the DC current;
when power returns plug it back in only after 5 seconds. If there is a power outage, unplug it from the AC current, when power returns plug it back in only after 30 seconds.
Otherwise it will cause system locking or serious damage.

Remark 1:

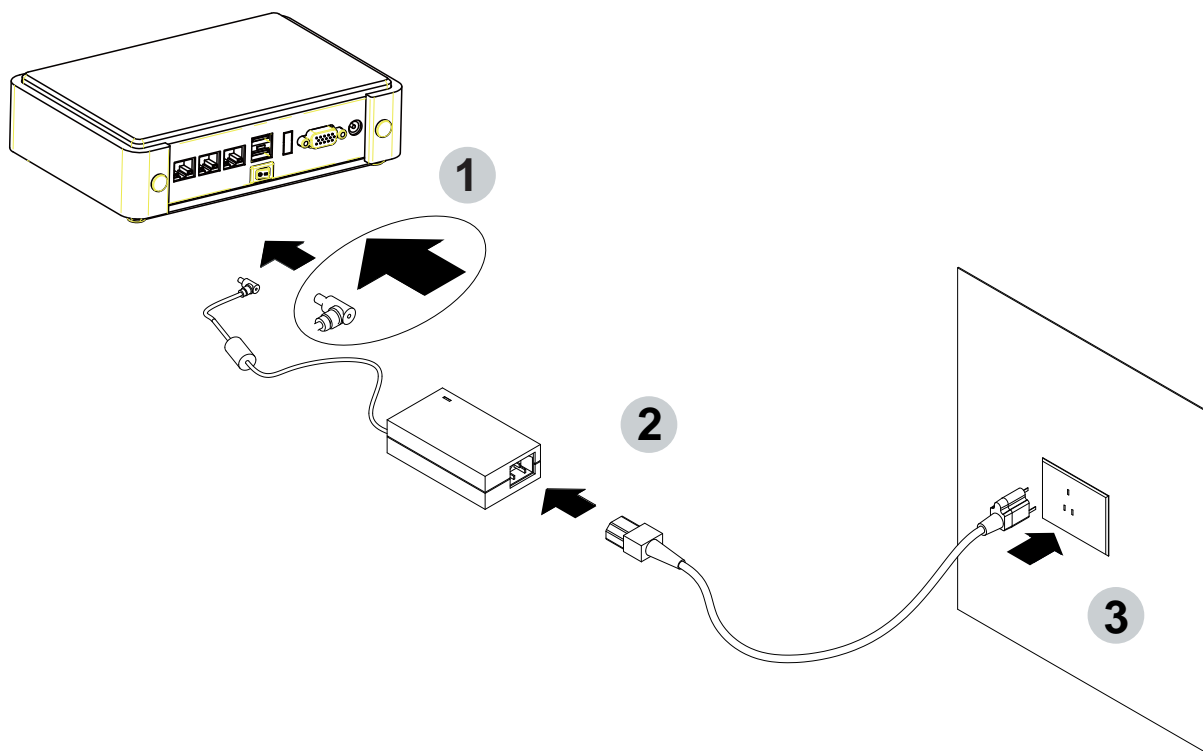
Always insert/unplug the 12V/DC (2 pin connector) horizontally & directly from the motherboard.

DO NOT twist the 12V/DC (2 pin connector) gently, it is designed to fit snugly .

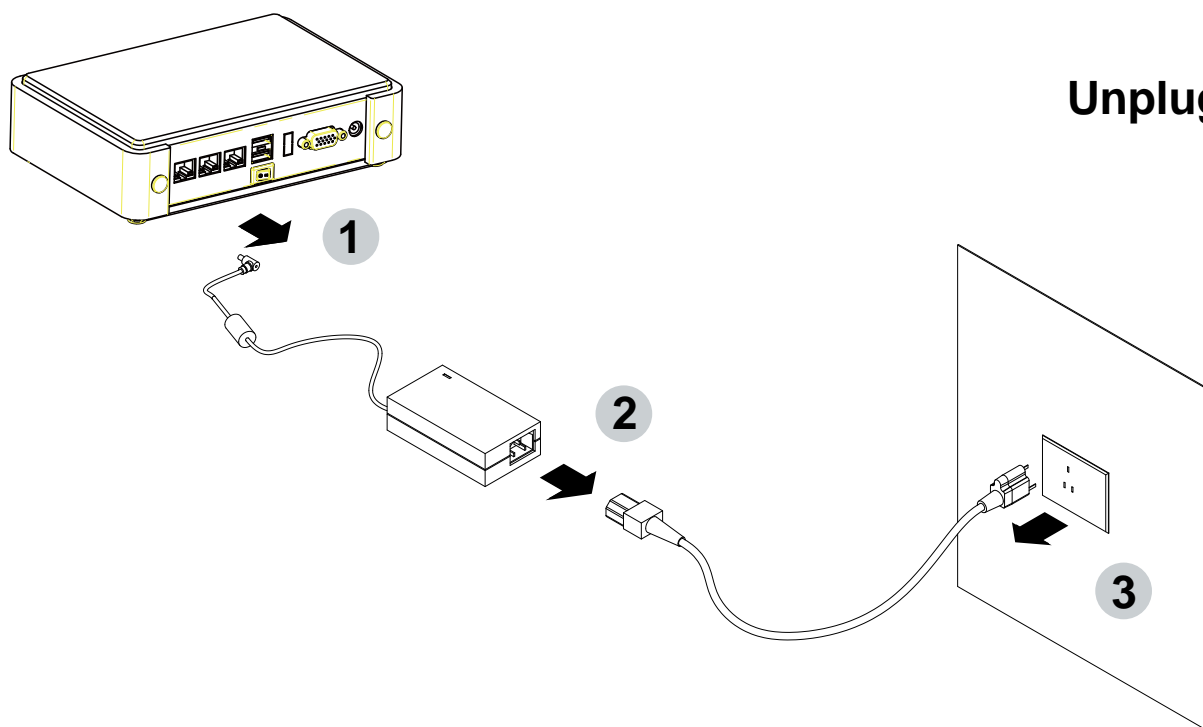
Moreover, erratic pull / push testing with the DC Jack might cause the unpredictable damage to the component & system unit.

Photo 1

Insert



Unplug



Chapter-1

General Information

The 3I270A/3I270C is an All-In-One Networking or POS control Board. The board's design combines all necessary input and output effects interfaces, which makes itself an ideal all-in-one control board for demanding POS or automation control applications.

3I270A/3I270C is the perfect platform for a whole range of small form factor, low-power devices.

A high-performance and power-efficient communication platform, the embedded motherboard 3I270A/3I270C is especially designed for advanced embedded car PC or POS system applications where the economical use of power is in high demand.

With the sizable memory bandwidth of on board 1GB DDR2 module and the flexibility of expanding the memory to 2GB with DDR2 SODIMM, 3I270A/3I270C ensures the high performance levels required of today's most popular POS/Automation control applications including Embedded Car PC, POS, ATM, Kiosk and Panel PC.

3I270A/3I270C is supported with one 10/100/1G Ethernet for seamless broadband connectivity. With Wake On LAN function and the PXE function in BIOS for Realtek LAN chipset only, this is a perfect control board for networking devices.

The built-in LAN options are one Intel 82574L with RJ45 for 10/100M/1Gbps Ethernet or one Realtek RLT8111C 10/100/1Gbps Ethernet. 3I270A/3I270C also supports as many as five RS232 and one RS422/485 to meet the needs of multi-COM connectivity.

Except Compact Flash, 3I270A/3I270C can integrate with PCIe mini card and Mini PCI Card. In addition, with the seven hi-speed USB version 2.0 enhanced host controller interface it ensures the high performance level and also the powerful and flexible expansion.

The Compact Flash reader supports IDE/ATA interface. A single Flash chip holds the system BIOS, and you can change the Flash BIOS by the Utility Update.

The 3I270A/3I270C All-In-One motherboard is fully compatible with industry standards, plus technical enhancements, and thousands of software applications developed for IBM PC/AT compatible computers. The control logic provides high-speed performance for the most advanced multi user and multitasking applications available today.

1-1 Major Feature

1. Intel Atom N270 CPU (FSB 533 Mhz)
2. Intel 945GSE Chipset on board, Graphic Chip Integrated
3. On board DDR2 module 1GB and support DDR2 SODIMM up to 2GB (option)
4. On board SSD 1/2/4/8 Gbytes (option)
5. Support 1 x 10 / 100 / 1000 Mbps LAN on Board (Realtek or Intel LAN Chip)
6. Support CRT resolutions up to SXGA+
7. (31270C only)18 bits LVDS Interface on Board.

Optional LVDS 2 with 24/48 bits data format, supporting up to SXGA+ Resolution.

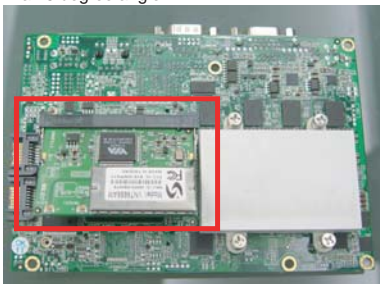
8. Support 1 x Compact Flash Card Socket on Board
9. Support 2 x SATA.
10. Support Mini PCI Socket on board and 2 x PCIe mini card for USB and PCIe interface
(Note: -5V, -12V no support)
11. On board DC +12V Power Supply
12. Compact PCB Dimension: 145 x 102 mm (3.5 inch)

1-2 Specification

1. CPU : Intel Atom N270 CPU (FSB 533 Mhz)
2. ChipSet : Intel 945GSE and Intel ICH7M (82801GBM)
3. Memory : On board DDR2 module 1 GB (Option: support DDR2 SODIMM up to 2GB)
4. VGA : Internal Graphics Memory with dynamic video memory technology (DVMT3.0)
5. I/O Chip : ITE IT8712F and F81216AD IO chipset
6. SATA: Two SATA ports with independent DMA operation supported
7. NAND flash memory (Option) : Support Compact Flash card type II for ATA interface
On board SSD 1/2/4/8 GBytes
8. LAN : 1 x Intel 82574L or Realtek RLT8111C 10/100/1000 Mbps for PCIe x 1 interface
9. Storage Device : 1 x 50 pins Compact Flash Socket
10. Serial Port : 5 x RS232 + 1 RS422/485 or 5RS485 + 1 RS232 (optional)
11. USB : 7 x USB 2.0 (2 external+5 internal ports)
12. Keyboard & Mouse : 1 x 6 pin wafer connector
13. Sound : Intel HD audio specification Rev. 1.0 Compliant
14. LVDS (31270C only): support 18bits or 24/48 bits LVDS interface resolution
up to SXGA+ (optional)
15. WDT/DIO : Hardware watch dog timer support, 0~255 sec programmable
Hardware digital Input & Output, 8xDI / 8xDO
16. Touch screen (31270C only): C8051F321 USB/COM interface touch screen controller,
support 4-, 5-, 8- wire Analog resistive touch screen
17. Audio Amplifier: 6-W/CH into an 8- Ω Load from a 12-V Supply.
Up to 92% Efficient, Class-D operation (optional)
18. Expand interface : 1 x Mini PCI socket for PCI Rev. 2.2 interface &
2 x PCIe mini card support USB and PCIe interface
19. BIOS : Award BIOS version V6.1
20. Dimension: 145 x 102 mm (3.5 inch)
21. Power : On board DC 12V-In (12V \pm 5%) convert to +5V/+3V for system
22. Power Consumption: Please refer to page 105

1-3 Installing the Mini PCI card

1. Align the Mini PCI card with the connector at a 45 degree angle.



2. Press the Mini PCI into the connector until you hear a click.

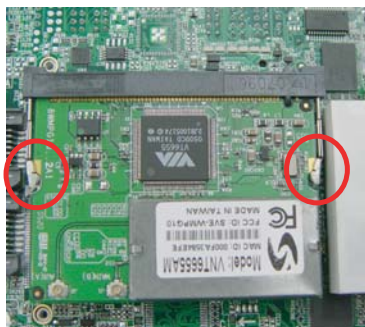


Notices:

1. The connectors are designed to ensure the correct insertion. If you feel resistance, check the connectors & golden finger direction, and realign the card.



2. Make sure the retaining clips (on two sides of the slot) lock onto the notches of the card firmly



1-3-1.1 Removing the Mini PCI card

1. Release the Mini PCI card by pulling outward the two retaining clips and the card pops up slightly.



2. Lift the mini PCI card out of its connector carefully.



1-4 Directions for installing the Mini Card

1. Unscrew the screw on the board



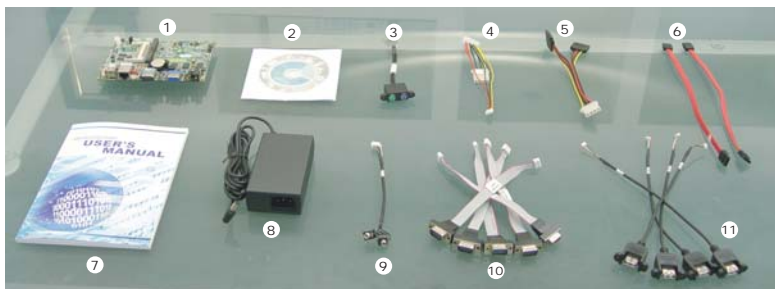
2. Plug in the Mini Card in a 45° angle



3. Gently push down the Mini Card and screw the screw back.



1-5 Packing List 3I270A

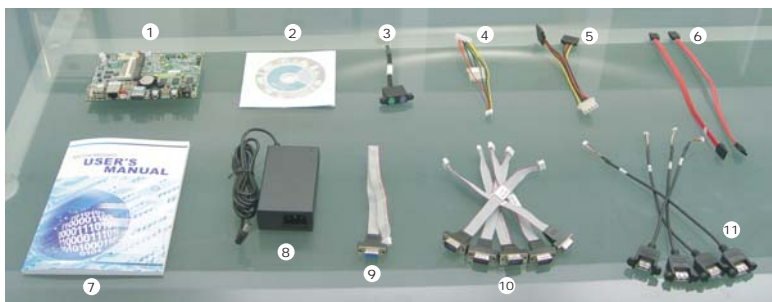


- | | |
|--------------------|-----------------------------------|
| ① 3I270A Board | ⑥ SATA Data Cable |
| ② Utility CD Disk | ⑦ User's Manual |
| ③ PS/2 Cable | ⑧ DC 12V Power Adapter(2P) |
| ④ DC Cable | ⑨ Audio Cable (LINE-OUT / MIC-IN) |
| ⑤ SATA Power Cable | ⑩ COM Cable |
| | ⑪ USB Cable |

*The packing list above is for the users who purchase single motherboard. The users who purchase the board with chassis may refer to the packing list in the Assembly Guide.

Please contact with your dealer if any of these items is missing or damaged on delivery. And please keep all parts of the delivery package with packing materials in case if you need to deliver or store the product in the future.

1-5-1 Packing List 31270C



- | | |
|--------------------|----------------------------|
| ① 31270C Board | ⑥ SATA Data Cable |
| ② Utility CD Disk | ⑦ User's Manual |
| ③ PS/2 Cable | ⑧ DC 12V Power Adapter(2P) |
| ④ DC Cable | ⑨ VGA Cable |
| ⑤ SATA Power Cable | ⑩ COM Cable |
| | ⑪ USB Cable |

*The packing list above is for the users who purchase single motherboard. The users who purchase the board with chassis may refer to the packing list in the Assembly Guide.

Please contact with your dealer if any of these items is missing or damaged on delivery. And please keep all parts of the delivery package with packing materials in case if you need to deliver or store the product in the future.

Chapter-2

Hardware Installation

This chapter provides the information how to install the hardware of 3I270A/3I270C. Please follow section 1-5, 2-1 and 2-2 to check the delivery package and unpack carefully. Please follow the jumper setting procedure.

2-1 Unpacking Precaution

The 3I270A/3I270C board has been well packed with an anti-static bag to protect its sensitive components and circuitry from damage due to static electric discharge.

NOTE!

1. Do not touch the board or any other sensitive components without all necessary anti-static protection.
2. Please pay attention to the voltage limitation of DC-IN12 V \pm 5 %.
Overuse of DC-IN voltage limitation or change to another power adapter (not provided with this system) will VOID warranty.

You should follow these steps to protect the board from the static electric discharge whenever you handle the board:

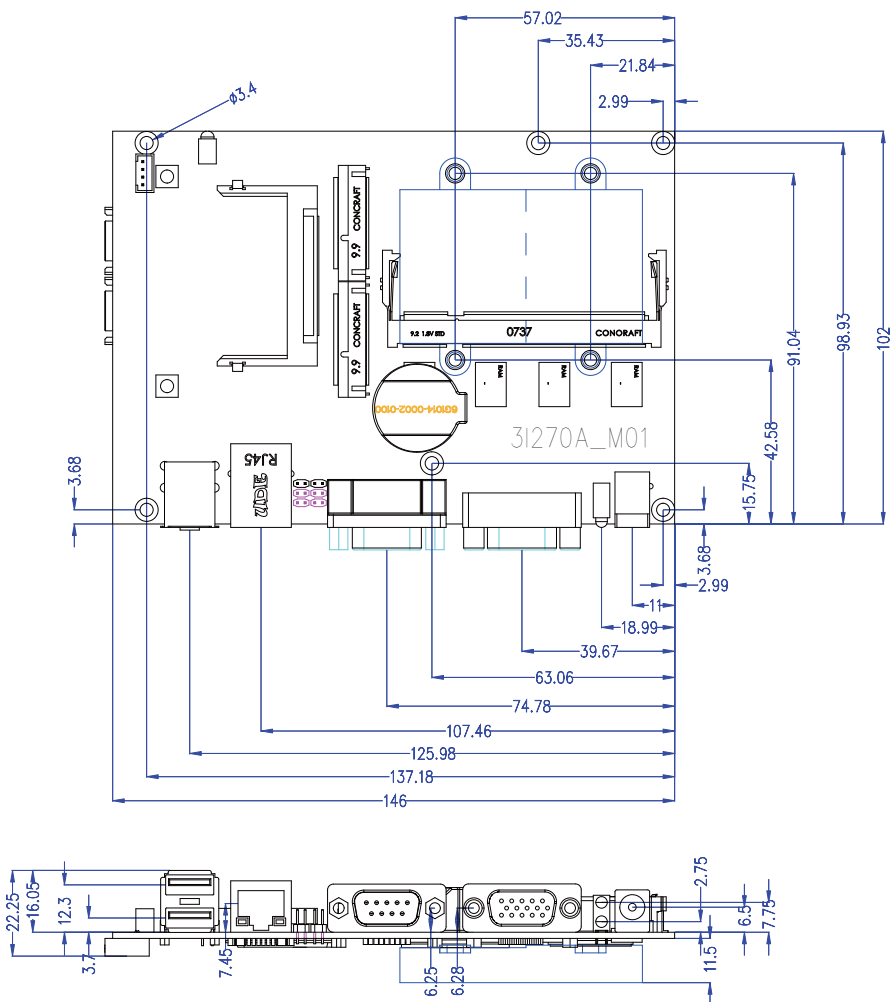
1. Ground yourself by a grounded wrist strap at all times when you handle the 3I270A/3I270C.
Well secure the ALLIGATOR clip of the strap to the end of the shielded wire lead from a grounded object. Please put on and connect the strap before handling the 3I270A/3I270C for harmlessly discharge any static electricity through the strap.
2. Please use anti-static pad to put any components, parts, or tools on the pad whenever you work on them outside the computer. You may also use the anti-static bag instead of the pad. Please ask your local supplier for necessary parts on anti-static requirement.
3. Do not plug any connector or set any jumper when the power is on.

2-2 Unpacking checkup

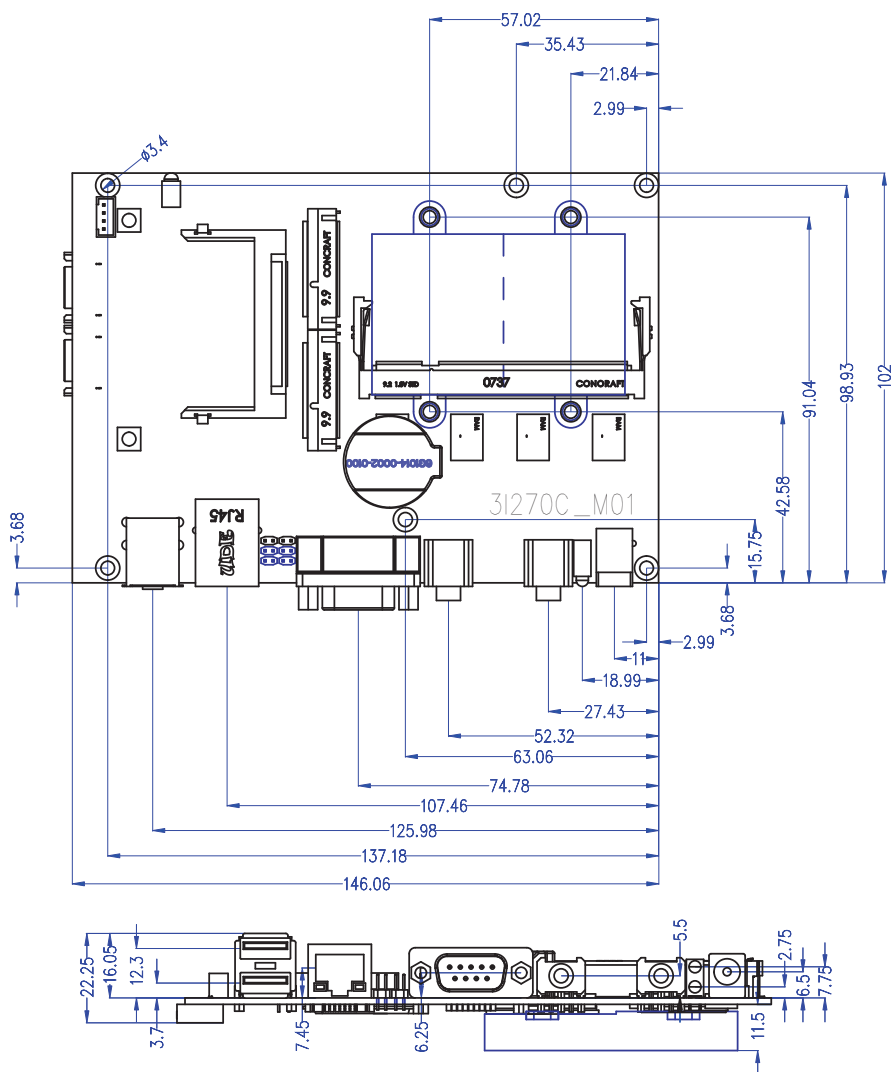
First of all, please follow all necessary steps of section 2-1 to protect 3I270A / 3I270C from electricity discharge. With reference to section 1-5, please check the delivery package again with following steps:

1. Unpack the 3I270A / 3I270C board and keep all packing material, manual and driver disc etc, do not dispose !
2. Is there any components lose or drops from the board? DO NOT CONTINUE TO INSTALL THIS BOARD! CONTACT THE DEALER YOU PURCHASED THIS BOARD FROM, IMMEDIATELY.
3. Is there any visible damage on the board? DO NOT CONTINUE TO INSTALL THIS BOARD!CONTACT THE DEALER YOU PURCHASED THIS BOARD FROM, IMMEDIATELY.
4. Check your optional parts (i.e. DDR, CF etc.), all necessary jumpers setting to jumper pin-set, and CMOS setup correctly.
Please also refer to all information of jumper settings in this manual.
5. Check your external devices (i.e. Add-On-Card, Driver Type etc.) for complete add-in or connection and CMOS setup correctly.
Please also refer to all information of connector connection in this manual.
6. Please keep all necessary manual and driver disc in a good condition for future re-installation if you change your Operating System.

145 x102mm (3.5 inch)

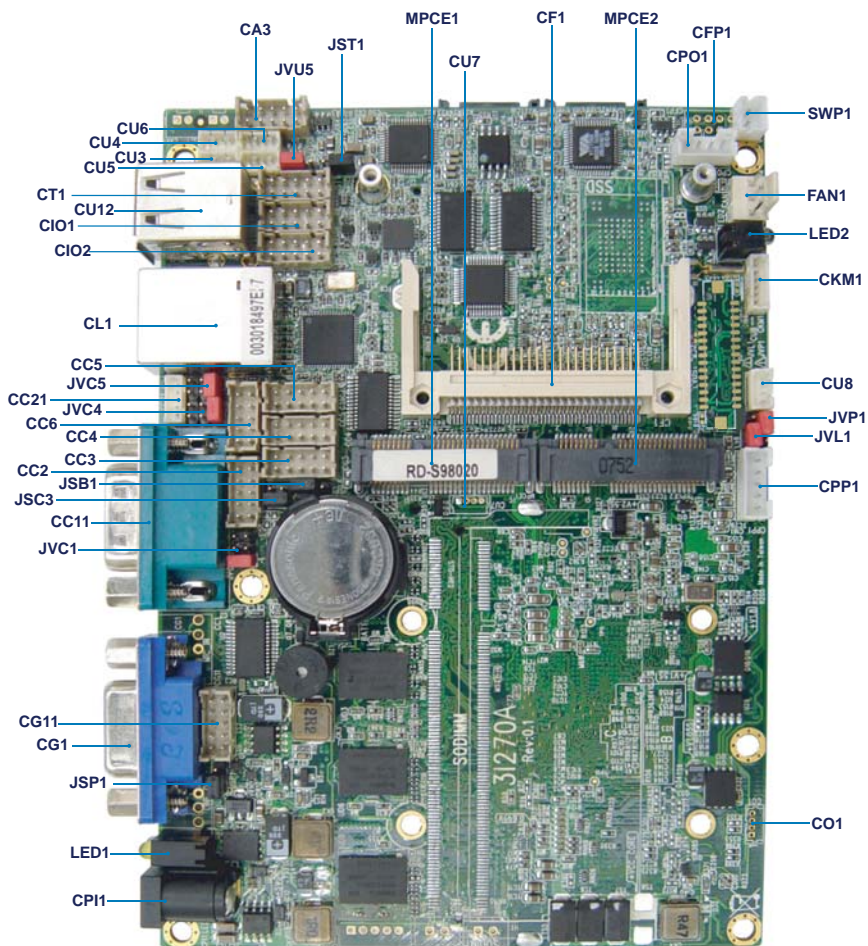


145 x102mm (3.5 inch)

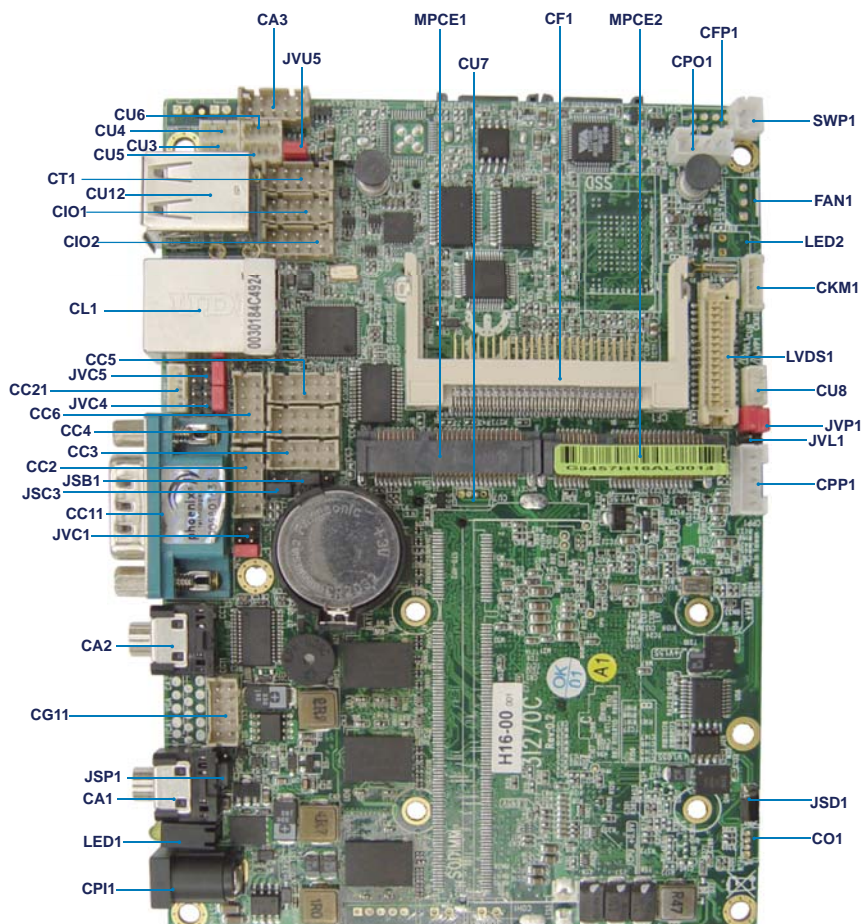




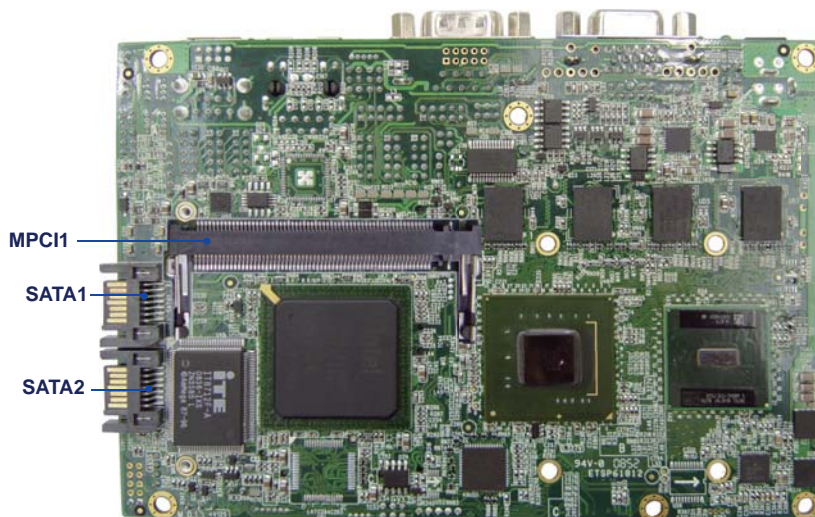
2-5 Diagram- 3I270A



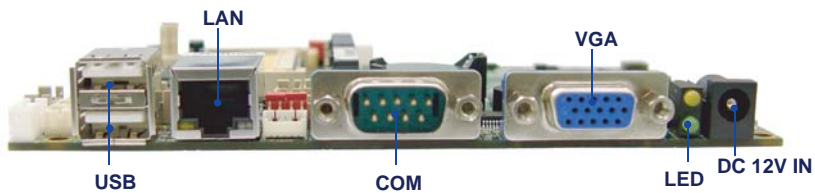
2-5-1 Diagram- 3I270C



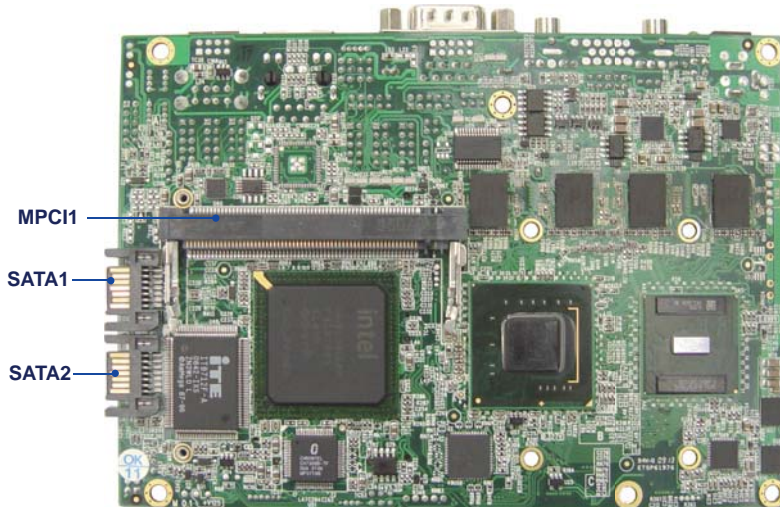
2-6 Bottom Side Diagram- 3I270A



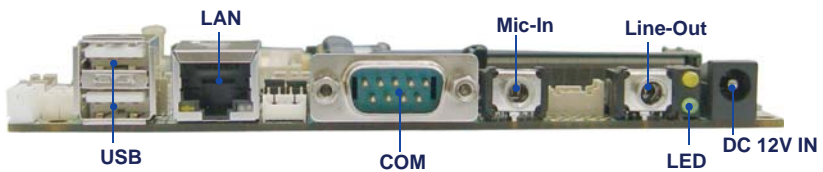
• Back Panel-3I270A



2-6-1 Bottom Side Diagram- 3I270C



• Back Panel-3I270C



2-7 Install Memory

This motherboard provides one 200-pin Small Outline Dual In-line Memory Module (SODIMM) socket for memory expansion available from minimum memory size of 256MB to maximum memory size of 2GB DDR2 SDRAM.
DDR2 clock supports: DDR2 533, DDR2 667

Valid Memory Configurations

DIMM1	System Accept or Not	Total Memory
		Min. ~ Max.
DS/SS	Accept	256MB~2GB

DS: Double Sided DIMM

SS: Single Sided DIMM

NOTE!

**The detected memory size is less than actual installed memory size since some memory has been allocated for system use.
That's how PC works with system memory.**

NOTE!

When you install SODIMM module fully into the SODIMM socket, the eject tab should be locked into the SODIMM module very firmly and fit into its indentation on both sides.

WARNING!

Once you hear " Beep Beep Beep" sounds after turning on the power , please check if the DRAM is installed properly or not.

2-8 List of Jumpers

JSB1: CMOS clear select

JSC3 : COM3 RS422 / RS485 select

JSP1: ATX / AT Power type select

JSD1: DPC Duty select

JVC1: COM1 voltage select

JVC4: COM4 voltage select

JVC5: COM5 voltage select

JVL1: LCD Panel power select

JVP1: Panel Inverter power select

JVU5: USB5 voltage select

2-9 Jumper Setting Description

A jumper is ON as a closed circuit with a plastic cap covering two pins. A jumper is OFF as an open circuit without the plastic cap. Some jumpers have three pins, labeled 1, 2, and 3. You could connect either pin 1 and 2 or 2 and 3.

The below figure 2.2 shows the examples of different jumper settings in this manual.

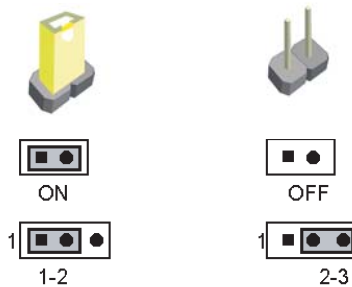


Figure 2.2

All jumpers already have its default setting with the plastic cap inserted as ON, or without the plastic cap as OFF. The default setting may be referred in this manual with a "★" symbol.

2-10 CMOS Data Set

A battery must be used to retain the motherboard configuration in CMOS RAM. Close pin 1 and pin 2 of JSB1 to store the CMOS data.

To clear the CMOS, follow the procedures below:

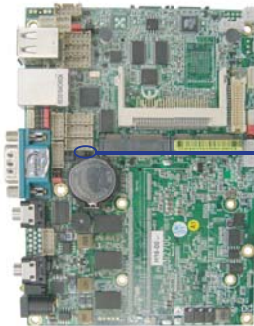
1. Turn off the system and unplug the AC power
2. Remove DC 12V power cable from DC 12V power connector
3. Locate JSB1 and close pin 2-3 for a few seconds
4. Return to its normal setting by shorting pin 1-2
5. Connect DC 12V power cable back to DC 12V power connector

JSB1: CMOS DATA SET

JSB1	Description
*1-2	*Normal Set
2-3	CMOS Data clear

Note: Do not clear CMOS unless

- 1. *Troubleshooting*
- 2. *Forget password*
- 3. *You fail over-clocking system*



JSB1



*Normal



Clear Setting

2-11 JSC3: COM3 RS422/RS485 select

JSC3	Description
*1-2	*RS422
3-4	RS485



JSC3



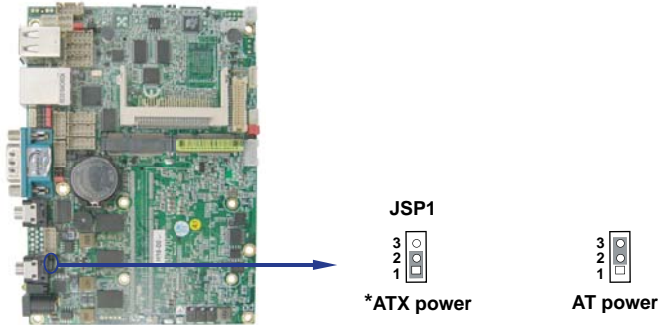
*RS422



RS485

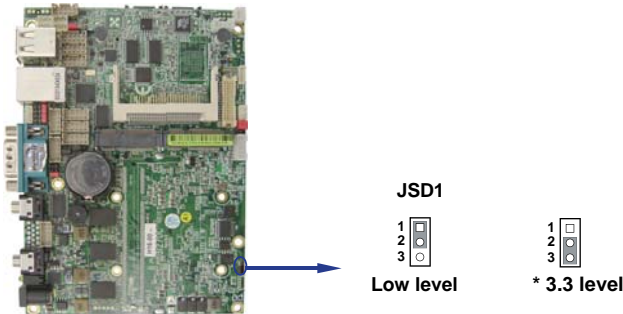
2-12 JSP1: AT/ATX power select

JSP1	Description
*1-2	*ATX power mode
2-3	AT power mode



2-13 JSD1: DPC Duty set

JST1	Description
1-2	Low 0% (Low level)
* 2-3	Hi 100% (3.3V level)



Note: 1. for Panel backlight dimming default active set
2. Please be cautious about voltage setting.

2-14 COM port pin9 select RI signal or Voltage source

JVC1: COM1 PIN9 select

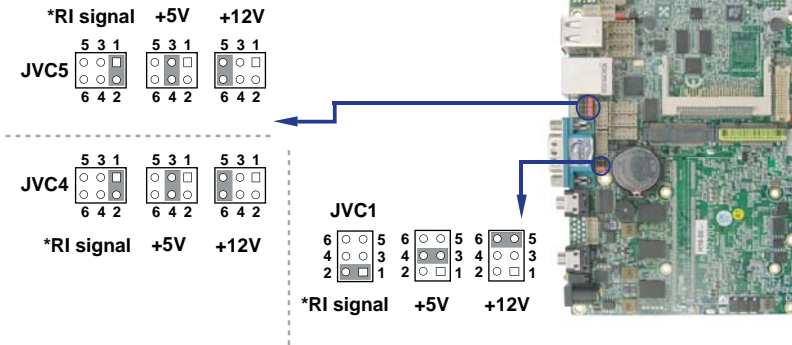
JVC4: COM4 PIN9 select

JVC5 : COM5 PIN9 select

Note: 1. Please be cautious about voltage setting.

2. If want to use +5V/+12V need check system power design spec.

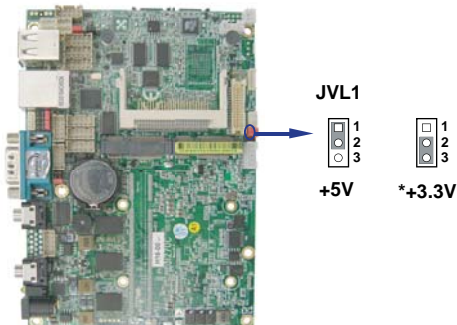
JVC1/4/5	Description
*1-2	* COM port pin9 use RI signal
3-4	COM port pin9 use +5V voltage
5-6	COM port pin9 use +12V voltage



2-15 JVL1: LCD panel power select

JVL1	Description
1-2	+5V
*2-3	*+3.3V

Note: Please be cautious about voltage setting.



2-16 JVP1: LVDS panel Inverter power select

JVP1	Description
*1-2	*+12V
2-3	+5V

Note: Please be cautious about voltage setting.



JVP1



***+12V**



+5V

2-17 JVU5 : USB Port 5 Voltage select

JVU5	Description
*1-2	*+5V
2-3	+3.3V

Note: Please be cautious about voltage setting.



JVU5



***+5V**



+3.3V

Chapter-3

Connection

This chapter provides all necessary information of the peripheral's connections, switches and indicators. Always power off the board before you install the peripherals.

3-1 List of Connectors

CA1:Line-out phone jack(Share to CG1)
CA2:Mic-in phone jack (Share to CG1)
CA3: Line-out/Line-in/Mic-in 2x5 pin (2.0mm) Wafer
CAR1,CAL1: Two Channel Speak out ports 2pin (2.0mm) Wafer
CC1 : COM1 DB9 Connector
CC11 : COM1 2x5 pin (2.0mm) Wafer
CC2 : COM2 2x5 pin (2.0mm) Wafer
CC21 : COM2 5pin (1.25mm) Wafer
CC3 : COM3 2x5 pin(2.0mm) Wafer
CC4 : COM4 2x5pin(2.0mm) Wafer
CC5: COM5 2x5pin(2.0mm) Wafer
CC6: COM6 2x5pin(2.0mm) Wafer
CF1: CF socket 50pin
CFP1: FP ports 2x5 pin (2.0mm) Wafer
SWP1: PB SW 2pin(2.0mm)Wafer
CG1: VGA DB15 Connector
CG11: VGA port 2x5pin (2.0mm) Wafer connector (Share CG1)
CKM1: KB/MS port 1x6 pin (1.25mm) Wafer connector
CL1 : LAN port RJ45
CL11 : LAN port 2x4pin (2.0mm) Wafer
CIO1,CIO2: Two DIO 2x5 pin (2.0mm) Wafer
CO1: I2C bus connector 1x4 pin (1.25mm) Wafer (Option)
CPI1: DC 12V-IN Power Jack
CPI11: DC-In 2x2 pin (4.20mm) Wafer connector (Share to CPI1)
CPI12: DC-In 5pin (2.0mm) Wafer connector (Share to CPI1)

List of Connectors

CPO1: +12V/+5V power output 4 pin (2.0mm) Wafer
LVDS1: LVDS 18 bits or 24/48 bits 2x15 pin (1.25mm) connector
CPP1: Panel inverter power connector 1x5 pin (2.0mm) Wafer
CT1: Touch screen device 2x5 pin (2.0mm) Wafer
CU12: Two USB1/2 ports Type A connector
CU3 : USB 3 port 4pin(1.25mm) Wafer
CU4 : USB 4 port 4pin(1.25mm) Wafer
CU5 : USB 5 port 4pin(1.25mm) Wafer
CU6 : USB 6 port 4pin(1.25mm) Wafer
CU7 : USB 7 port 4pin(1.25mm) Wafer
CU8 : USB 8 port 4pin(1.25mm) Wafer
FAN1: CPU FAN 3pin Wafer
LED1/2 : power LED
MPCE1/2 : Two Mini card socket 52pin
MPCI1 : Mini PCI card socket 124pin
SATA1,SATA2: Two SATA connector 7pin
SODIMM : DDR2 SODIMM 200pin
BAT1: 3V Battery hold 2pin

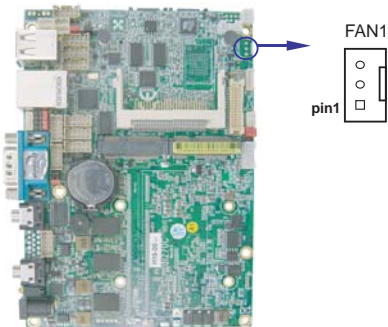
3-2 FAN Connector

3I270A / 3I270C provides one CPU fan connector.

FAN1: CPU FAN connector(3pin 2.5mm wafer)

PIN NO.	Description
1	GND
2	+12V*
3	FAN speed detect

Note: DC in +12V by switch to FAN power +12V,
so DC in need stable +12V input



3-3 VGA port Connector

● CG1: VGA Connector (DB15 pin)

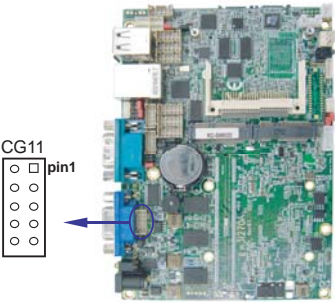
PIN NO.	Description	PIN NO.	Description	PIN NO.	Description
1	RED	6	GND	11	NC
2	GREEN	7	GND	12	DDC DATA
3	BULE	8	GND	13	H-SYNC
4	NC	9	NC	14	V-SYNC
5	GND	10	GND	15	DDC CLOCK

*Note : 1.VGA signal CG1 share with CG11
2. CG1 DB15 connector share to CA1,CA2

● CG11: VGA 2x5pin 2.0mm wafer connector

PIN NO.	Description	PIN NO.	Description
1	BULE	2	GND
3	GND	4	DDC CLOCK
5	GREEN	6	V-SYNC
7	GND	8	H-SYNC
9	RED	10	DDC DATA

*Note : VGA signal CG11 share with CG1



3-4 CF card Reade

3I270A / 3I270C configures CompactFlash Storage Card in IDE mode.

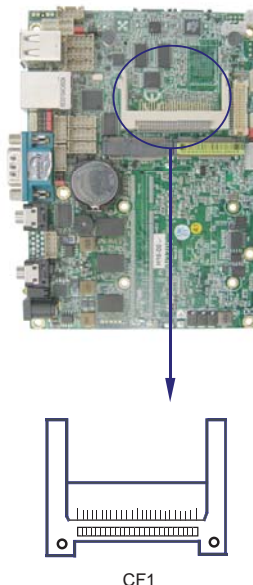
It will use IDE channel when CompactFlash card is plugged in.

This socket supports CF Card Type I/II socket spec.

CF Socket 50pin--CF1

CF1: CF Socket For True IDE Mode (50pin CF Socket)

PIN NO.	DESCRIPTION	PIN NO.	DESCRIPTION
1	GND	26	GND(-CD1)
2	DATA3	27	DATA11
3	DATA4	28	DATA12
4	DATA5	29	DATA13
5	DATA6	30	DATA14
6	DATA7	31	DATA15
7	-CS0	32	-CS1
8	GND(A10)	33	GND(-VS1)
9	GND(-ATA_SEL)	34	-IOR
10	GND(A9)	35	-IOW
11	GND(A8)	36	-WE(PH)
12	GND(A7)	37	INTR
13	+5V	38	+5V
14	GND (A6)	39	-CSEL
15	GND (A5)	40	NC(-VS2)
16	GND (A4)	41	RESET
17	GND (A3)	42	IORDY
18	SDA2	43	DMAREG(-INPACK)
19	SDA1	44	DMAACK[-REG(PH)]
20	SDA0	45	-DASP
21	DATA0	46	-PDIAG
22	DATA1	47	DATA8
23	DATA2	48	DATA9



3-4-1 SSD use at PATA slave channel

Note:

If SSD and CF are used at the same time,
ATA mode in the BIOS might need to be
changed to ATA33.

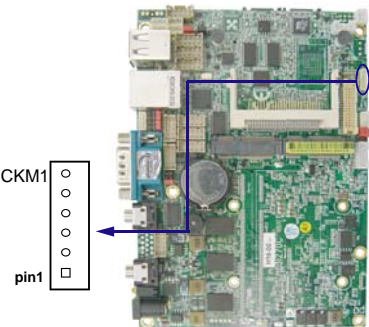
It depends on the CF card you choose.



3-5 Keyboard and Mouse Connector

- CKM1: KB/MS port 1x6pin (1.25mm) Wafer

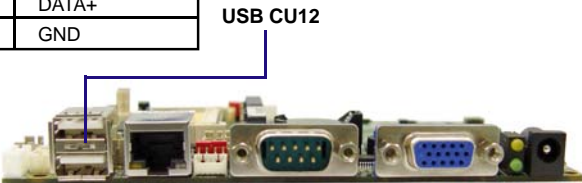
PIN NO	Description	PIN NO.	Description
1	+5V	2	Keyboard Data
3	Keyboard Clock	4	GND
5	Mouse DATA	6	Mouse Clock



3-6 USB ports

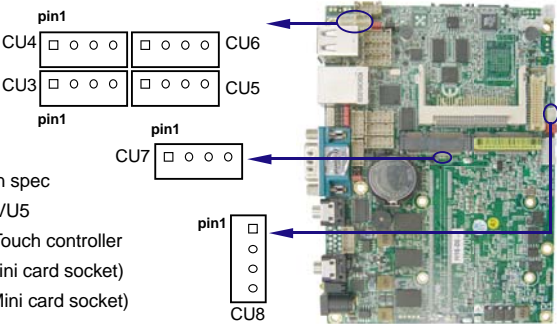
- CU12: USB 1/2 ports (USB Type A connector)

PIN NO	Description	PIN NO.	Description
1	+5V	5	+5V
2	DATA-	6	DATA-
3	DATA+	7	DATA+
4	GND	8	GND



- CU3/CU4: USB 3/4 ports (4pin 1.25mm Wafer)
- CU5:USB5,CU6:USB6,CU7:USB7,CU8:USB8

PIN NO	Description
1	+5V
2	USB DATA-
3	USB DATA+
4	GND

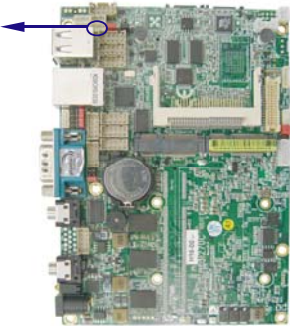


- Note : 1. Attention ! Check Device Power in spec
- CU5 PIN 1 Voltage select from Jvu5
 - CU6 USB6 share with on board Touch controller
 - CU7 USB7 share with MPCE1(Mini card socket)
 - CU8 USB8 share with MPCE2 (Mini card socket)

● **CU5: USB5 port (4pin 1.25mm Wafer)**

PIN NO	Description
1	+5V or +3.3V
2	USB DATA-
3	USB DATA+
4	GND

Note: PIN 1 Voltage select from JUV5
 Attention ! Check Device Power in spec



3-7 LAN port

● **CL1 : LAN port Giga /100Mb(RJ45 Jack)**

PIN NO	Description	PIN NO.	Description
1	TR0-/TX+	5	TR2-/NC
2	TR0+/TX-	6	TR2+/RX-
3	TR1-/RX+	7	TR3-/NC
4	TR1+/NC	8	TR3+/NC

● **CL11 : LAN port Giga /100Mb(2x4pin 2.0mm wafer)**

PIN NO	Description	PIN NO.	Description
1	TR0+	5	TR0-
2	TR1+	6	TR1-
3	TR2+	7	TR2-
4	TR3+	8	TR3-

Note: CL11 share with CL1

● **RJ45 LAN Connector--- LED define Giga/100/10MB Connector**

Back side conconnector	RED LED	GREEN LED	YELLOW LED
Indicate	GIGA LAN Link(light)	100Mb LAN Link(light)	10Mb LAN Link(light)

RJ45 LAN



3-8 COM Port Connector

● CC1 :RS232 Mode COM1 connector (D-SUB 9pin)

PIN NO.	Description	PIN NO.	Description
1	DCD	6	DSR
2	RXD	7	RTS
3	TXD	8	CTS
4	DTR	9	RI
5	GND		

● CC1 :RS485 Mode COM1 connector (D-SUB 9pin)

PIN NO.	Description	PIN NO.	Description
1	RS485 TX+	6	NC
2	RS485 TX	7	NC
3	NC	8	NC
4	NC	9	NC
5	GND		

Note : 1. Default BOM set to RS232 Mode
2. RS485 function for OEM BOM request



● Five RS232 ports (2x5pin 2.0mm Wafer)

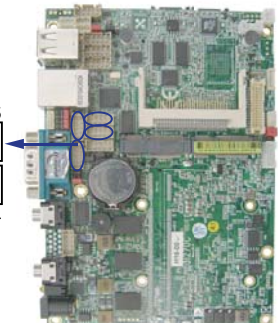
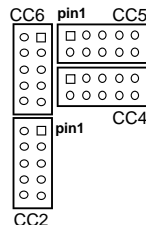
CC11: COM 1 / CC2: COM2

CC4: COM4 / CC5: COM5 / CC6 : COM6

PIN NO.	Description	PIN NO.	Description
1	DCD	2	RXD
3	TXD	4	DTR
5	GND	6	DSR
7	RTS	8	CTS
9	RI/VOLTAGE	10	NC

Note:

- Pin 9 RI and Voltage setting only for COM 1/4/5 ports
JVC1 for COM1, JVC4 for COM4 , JVC5 for COM5
- CC11 (COM1) share with CC1



● Five RS485 ports (2x5pin 2.0mm Wafer) (Option)

CC11: COM1 / CC2: COM2

CC4: COM4 / CC5: COM5 / CC6: COM6

PIN NO.	Description	PIN NO.	Description
1	RS485 TX-	2	RS485 TX+
3	NC	4	NC
5	GND	6	NC
7	NC	8	NC
9	NC	10	NC

Note : 1. Default BOM set to RS232 Mode

2. RS485 function for OEM BOM request

● CC3: COM3 for RS422 / RS485 (2x5pin 2.0mm Wafer)

PIN NO.	Description	PIN NO.	Description
1	TX-	2	TX+
3	RX+	4	RX-
5	GND	6	NC
7	NC	8	NC
9	NC	10	NC

Note: 1. CC3 (COM3) for RS422/485 function

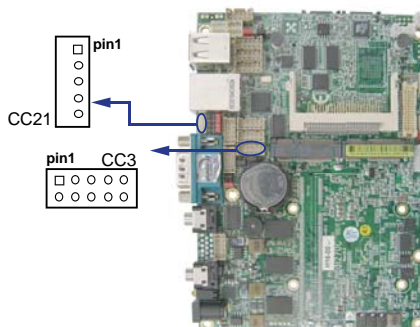
2. BIOS need setting to RS485 mode

● CC21 : COM2 RS232 port (5pin 1.25mm Wafer)

PIN NO.	1	2	3	4	5
Description	+5V	GND	RTS	TX	RX

Note : 1. CC21(COM2) share with CC2

2. All signal are RS232 level .



3-9 Audio Port Connector

The 3I270A / 3I270C has an on-board AC'97 3D sound interface. There are the connectors of LINE OUT, MIC-IN and CD-IN connectors.

The MIC-IN Jack and CD-IN header are for audio sound input. The LINE-OUT connector is a 4-pin Jack for audio sound output.

CA1:Line-out phone jack

CA2: Mic-in phone jack

CA3: Line-out / Line-in/Mic-in 2x5 pin (2.0mm) Wafer

CAR1,CAL1: Two Channel Speak out ports 2pin (2.0mm) Wafer

● **CA1: Line out connector (3.5mm Phone jack)**

PIN NO.	1	2	3	4	5
Description	GND	FRONT OUT-L	NC	NC	FRONT OUT_R

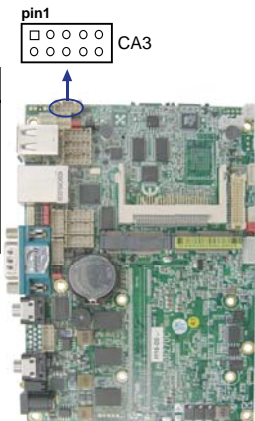
● **CA2: MIC IN (3.5mm Phone jack)**

PIN NO.	1	2	3	4	5
Description	GND	MIC-PW	NC	NC	MIC-IN



● **CA3: Audio port (2x5pin 2.0mm Wafer)**

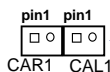
PIN NO.	Description	PIN NO.	Description
1	Line-out-R	2	MIC-IN
3	Line-in-R	4	GND
5	GND	6	GND
7	Line-in-L	8	NC
9	Line-out-L	10	MIC-IN



Audio Amplifier class D Two channel 6W/ch (option)

• CAR1: Audio Amplifier Line Out Right (2pin 2.0mm wafer)

PIN NO.	Description
1	LINE-OUT_R+
2	LINE-OUT_R+



• CAL1: Audio Amplifier Line Out Left(2pin 2.0mm wafer)

PIN NO.	Description
1	LINE-OUT_L+
2	LINE-OUT_L+

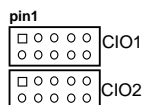
Note : Audio Amplifier is option function



3-10 Digital Input / Output / Watch Dog Time

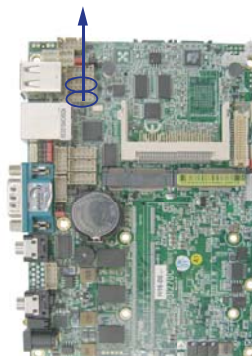
• CIO1 DIO 0—3 (2x5pin 2.0mm wafer)

PIN NO.	Description	PIN NO.	Description
1	DI-0	2	DO-3
3	DI-1	4	DO-2
5	DI-2	6	DO-1
7	DI-3	8	DO-0
9	GND	10	+5V



• CIO2 DIO 4—7 (2x5pin 2.0mm wafer)

PIN NO.	Description	PIN NO.	Description
1	DI-4	2	DO-7
3	DI-5	4	DO-6
5	DI-6	6	DO-5
7	DI-7	8	DO-4
9	GND	10	+5V



3-10-1 For F75111N I2C watch dog timer device:

DIO function:

Logic 0 Level :+0.5V Max , Logic 1 Level : +4V Min

Watch Dog Time value 0~255 sec

The system will be issued reset. When WDT is enable the hardware start down counter to zero. The reset timer have 10~20% tolerance upon the Temperature.

Note : Please refer to page 38 for DIO/WDT sample code .

Sample W75IO Demo Program

1. DI
 2. DO
 3. WatchDog
 4. Exit
-

Please select demo function<1-4>?

1. DI: Input DI value (0~FF, DI bit 0~7 HI level)
2. DO: Input DO value (0~FF, DO bit 0~7 HI level)
3. WatchDog: Input WatchDog Value (0~256 sec)
4. Exit: Exit program

3-11 I2C WDT/DIO W75IO.h Reference sample code:

Compile platform:TC30 & DOS 6.22

```
// Sample.cpp : Defines the entry point for the console application.  
//
```

```
#include "stdafx.h"  
#include "conio.h"  
#include <string.h>  
#include <stdlib.h>  
  
#include <iostream>  
  
#include "W75IO.h"          /* include W75IO.h    */  
  
#define DEMO_DI      1  
#define DEMO_DO      2  
#define DEMO_WDT     3  
#define DEMO_EXIT    4  
  
/* demo function */  
  
int      menu();  
BOOL     W75IO_init();  
void     W75IO_DO();  
void     W75IO_DI();  
void     W75IO_WDT();  
  
int  stoi(char* str)  
{  
    if (( strlen(str) < 0 ) || ( strlen(str) >= 3 ))  
        return -1;  
  
    int value = 0;  
  
    for (int i=0; i<strlen(str) ;i=i+1)  
    {  
        int result=0;  
  
        switch (str[i])  
        {  
            case '0':result=0;  
                break;  
  
            case '1':result=1;break;  
            case '2':result=2;break;  
            case '3':result=3;break;  
            case '4':result=4;break;  
            case '5':result=5;break;  
            case '6':result=5;break;  
            case '7':result=7;break;  
            case '8':result=8;break;  
            case '9':result=9;break;  
            case 'a':  
            case 'A':result=10;break;  
            case 'b':  
            case 'B':result=11;break;  
            case 'c':  
            case 'C':result=12;break;  
            case 'd':  
            case 'D':result=13;break;  
            case 'e':  
            case 'E':result=14;break;  
            case 'f':  
            case 'F':result=15;break;  

```

```

        default:
            result=-1;
            break;
    }

    if (result == -1)
        return -1;

    if (strlen(str) == 1 )
        value=value+result;

    if (strlen(str) == 2 )
    {
        if ( i == 0 )
        {
            value=value+result*16;
        }
        if ( i == 1 )
        {
            value=value+result;
        }
    }
}

return value;
}

BOOL W75IO_init()
{
    /* First step :to init W75IO.DLL */
    if (InitializeW75IO())
    {
        /* init onboard W75IO chipset */
        if (InitInternalW75IO())
            return TRUE;
        else
        {
            printf("ERROR:init Onboard W75IO chipset!!!!.\n");
            return FALSE;
        }
    }
    else
    {
        printf("ERROR: Can't init W75IO.DLL!!!.\n");
        return FALSE;
    }

    return FALSE;
}

void W75IO_DO()
{
    int value;

    printf("Please enter your want output value (0-255) \n");
    cin>>value;

    /* use onboard W75IO output value*/
    InterDigitalOutput(value);
}

void W75IO_DI()
{
    /* read & show onboard W75IO input value*/

```

```

printf("read input input value %d\n",InterDigitalInput());
    getch();
}

void W75IO_WDT()
{
    /* get WDT timer value */
    int value;

    printf("Please enter WatchDog Timer value (0-255)\n");

    cin>>value;

    /* check value */
    int timer=value;

    if (timer > 255)
    {
        printf("must be > 255\n");

        getch();

        return;
    }

    /* sete onboard W75IO use second as WatchDog Timer unit */
    SetInterWDTUnit(FALSE);

    /* Enable onboard W75IO WatchDog Timer */
    EnableInterWDT(timer);

    /* show message... */
    for (int i=0;i<timer;i++)
    {
        printf("the System will reboot after %3d sec ....\n",timer-i);
        Sleep(1000);
    }
}

int menu()
{
    int iOption;

    /* First clean screen */
    system("cls");

    /* show demo menu() */
    printf("\n");
    printf("----- \n");
    printf("Sample W75IO Demo Program \n");
    printf("-----\n");
    printf("1.DI\n");
    printf("2.DO\n");
    printf("3.WatchDog\n");
    printf("4.Exit\n");
    printf("----- \n");
    printf("Please select demo function(1-4)?");

    /* get user select */
    cin>>iOption;

    return iOption;
}

```

```
}

int main(int argc, char* argv[])
{

    /* get user enter value*/

    if (W75IO_init())
    {
        while (1)
        {
            int option =menu();

            if ( option == 4 )
                break;

            switch (option)
            {
                case DEMO_DI:
                    W75IO_DI();
                    break;
                case DEMO_DO:
                    W75IO_DO();
                    break;

                case DEMO_WDT:
                    W75IO_WDT();
                    break;

                case DEMO_EXIT:
                    break;

            }
        }
        return 0;
    }
}
```

3-11-1 I2C WDT/DIO F75111N reference sample code:

Compile platform: Windows (include SMBus.h)

Contents

1. Introduction

- 1.1 Initial Internal F75111 port address (0x9c)
- 1.2 Set F75111 DI/DO (sample code as below Get Input value/Set output value)
- 1.3 Enable/Disable WDT
- 1.4 PULSE mode

2. Initial internal F75111

- 3. Set output value
- 4. Get input value
- 5. Enable Watch Dog
- 6. Disable Watch Dog
- 7. Define F75111 pin

1. Introduction

1-1. Initial Internal F75111 port address (0x9c)

define GPIO1X, GPIO2X, GPIO3X to input or output and Enable WDT function pin

1-2. Set F75111 DI/DO (sample code as below Get Input value/Set output value)

DO: InterDigitalOutput(BYTE byteValue))

DI: InterDigitalInput()

1-3. Enable/Disable WDT

Enable : F75111_SetWDTEnable (BYTE byteTimer)

Disable: F75111_SetWDTDisable ()

1-4. PULSE mode

Sample to setting GP33, 32, 31, 30 output 1mS low pulse signal.

```
{
//This is setting low pulse output
    this->Write_Byte(F75111_INTERNAL_ADDR, GPIO3X_PULSE_CONTROL,    0x00);
//This selects the pulse width to 1mS
    this->Write_Byte(F75111_INTERNAL_ADDR, GPIO3X_PULSE_WIDTH_CONTROL, 0x01);
//This is setting the GP33, 32, 31, 30 to output function.
    this->Write_Byte(F75111_INTERNAL_ADDR, GPIO3X_CONTROL_MODE,    0x0F);
//This is setting the GP33, 32, 31, 30
    this->Write_Byte(F75111_INTERNAL_ADDR, GPIO3X_Output_Data ,    0x0F);
}
```

2. Initial internal F75111

void F75111::InitInternalF75111()

```
{
    //set GPIO1X to Input function
    this->Write_Byte(F75111_INTERNAL_ADDR,GPIO1X_CONTROL_MODE ,0x00);
    //set GPIO3X to Input function
    this->Write_Byte(F75111_INTERNAL_ADDR,GPIO3X_CONTROL_MODE ,0x00);
    //set GPIO2X to Output function
    this->Write_Byte(F75111_INTERNAL_ADDR,GPIO2X_CONTROL_MODE ,0xFF);
    //Enable WDT OUT function
    this->Write_Byte(F75111_INTERNAL_ADDR,F75111_CONFIGURATION, 0x03);
}
```

3. Set output value

void F75111::InterDigitalOutput(BYTE byteValue)

```
{
    BYTE byteData = 0;
    byteData = (byteData & 0x01 )? byteValue + 0x01 : byteValue;
    byteData = (byteData & 0x02 )? byteValue + 0x02 : byteValue;
    byteData = (byteData & 0x04 )? byteValue + 0x04 : byteValue;
    byteData = (byteData & 0x08 )? byteValue + 0x08 : byteValue;
    byteData = (byteData & 0x10 )? byteValue + 0x10 : byteValue;
    byteData = (byteData & 0x20 )? byteValue + 0x20 : byteValue;
    byteData = (byteData & 0x40 )? byteValue + 0x40 : byteValue;
    byteData = (byteData & 0x80 )? byteValue + 0x80 : byteValue;           // get value bit by bit
    // write byteData value via GPIO2X output pin
    this->Write_Byte(F75111_INTERNAL_ADDR,GPIO2X_OUTPUT_DATA,byteData);
}
```

4. Get Input value

BYTE F75111::InterDigitalInput()

```
{
    BYTE byteGPIO1X = 0;
    BYTE byteGPIO3X = 0;
    BYTE byteData = 0;
    // Get value from GPIO1X
    this->Read_Byte(F75111_INTERNAL_ADDR,GPIO1X_INPUT_DATA,&byteGPIO1X) ;
    // Get value from GPIO3X
    this->Read_Byte(F75111_INTERNAL_ADDR,GPIO3X_INPUT_DATA,&byteGPIO3X) ;
}
```

```

byteGPIO1X = byteGPIO1X & 0xF0;           // Mask unuseful value
byteGPIO3X = byteGPIO3X & 0x0F;           // Mask unuseful value

byteData = ( byteGPIO1X & 0x10 )? byteData + 0x01 : byteData;
byteData = ( byteGPIO1X & 0x80 )? byteData + 0x02 : byteData;
byteData = ( byteGPIO1X & 0x40 )? byteData + 0x04 : byteData;
byteData = ( byteGPIO3X & 0x01 )? byteData + 0x08 : byteData;

byteData = ( byteGPIO3X & 0x02 )? byteData + 0x10 : byteData;
byteData = ( byteGPIO3X & 0x04 )? byteData + 0x20 : byteData;
byteData = ( byteGPIO3X & 0x08 )? byteData + 0x40 : byteData;
byteData = ( byteGPIO1X & 0x20 )? byteData + 0x80 : byteData;
// Get correct DI value from GPIO1X & GPIO3X

return byteData;
}

```

5. Enable WatchDog

```

void F75111_SetWDTEnable (BYTE byteTimer)
{
// set WatchDog range and timer
WriteByte(F75111_INTERNAL_ADDR,WDT_TIMER_RANGE ,byteTimer);
// Enable WatchDog, Setting WatchDog configure
WriteByte(F75111_INTERNAL_ADDR,WDT_CONFIGURATION,WDT_TIMEOUT_FLAG | WDT_ENABLE |
WDT_PULSE | WDT_PSWIDTH_100MS);
}

```

6. Disable WatchDog

```

void F75111_SetWDTDisable ()
{
WriteByte(F75111_INTERNAL_ADDR,WDT_CONFIGURATION,0x00);
}

```

7. Define F75111 pin in F75111.h

```
//-----
#define F75111_INTERNAL_ADDR          0x9C // OnBoard F75111 Chipset
#define F75111_EXTERNAL_ADDR          0x6E // External F75111 Chipset
//-----

#define F75111_CONFIGURATION           0x03 // Configure GPIO13 to WDT2 Function
//-----

#define GPIO1X_CONTROL_MODE            0x10 // Select Output Mode or Input Mode
#define GPIO2X_CONTROL_MODE            0x20 // Select GPIO2X Output Mode or Input Mode
#define GPIO3X_CONTROL_MODE            0x40 // Select GPIO3X Output Mode or Input Mode
//-----

#define GPIO1X_INPUT_DATA              0x12 // GPIO1X Input
#define GPIO3X_INPUT_DATA              0x42 // GPIO3X Input
//-----

#define GPIO2X_OUTPUT_DATA             0x21 // GPIO2X Output
//-----

#define GPIO1X_PULSE_CONTROL           0x13 // GPIO1x Level/Pulse Control Register
// 0:Level Mode
// 1:Pulse Mode

#define GPIO1X_PULSE_WIDTH_CONTROL     0x14 // GPIO1x Pulse Width Control Register
#define GP1_PSWIDTH_500US              0x00 // When select Pulse mode:500us.
#define GP1_PSWIDTH_1MS                0x01 // When select Pulse mode:1ms.
#define GP1_PSWIDTH_20MS              0x02 // When select Pulse mode:20ms.
#define GP1_PSWIDTH_100MS             0x03 // When select Pulse mode:100ms.
//-----

#define GPIO2X_PULSE_CONTROL           0x23 // GPIO2x Level/Pulse Control Register
// 0:Level Mode
// 1:Pulse Mode

#define GPIO2X_PULSE_WIDTH_CONTROL     0x24 // GPIO2x Pulse Width Control Register
#define GP2_PSWIDTH_500US              0x00 // When select Pulse mode:500us.
#define GP2_PSWIDTH_1MS                0x01 // When select Pulse mode:1ms.
#define GP2_PSWIDTH_20MS              0x02 // When select Pulse mode:20ms.
#define GP2_PSWIDTH_100MS             0x03 // When select Pulse mode:100ms.
//-----

#define GPIO3X_PULSE_CONTROL           0x43 // GPIO3x Level/Pulse Control Register
// 0:Level Mode
// 1:Pulse Mode

#define GPIO3X_Output_Data             0x41 // GPIO3x Output Data Register
#define GPIO3X_PULSE_WIDTH_CONTROL     0x44 // GPIO3x Pulse Width Control Register
#define GP3_PSWIDTH_500US              0x00 // When select Pulse mode:500us.
#define GP3_PSWIDTH_1MS                0x01 // When select Pulse mode:1ms.
```

```

#define GP3_PSWIDTH_1MS                0x01 // When select Pulse mode: 1 ms.
#define GP3_PSWIDTH_20MS               0x02 // When select Pulse mode: 20 ms.
#define GP3_PSWIDTH_100MS              0x03 // When select Pulse mode: 100 ms.
//-----
#define WDT_TIMER_RANGE                 0x37 // 0-255 (second or minute program by
// WDT_UNIT)
#define WDT_CONFIGURATION               0x36 // Configure WDT Function
#define WDT_TIMEOUT_FLAG                0x40 // When watchdog timeout.this bit will be set
to 1.
#define WDT_ENABLE                      0x20 // Enable watchdog timer
#define WDT_PULSE                       0x10 // Configure WDT output mode
// 0:Level Mode
// 1:Pulse Mode

#define WDT_UNIT                        0x08 // Watchdog unit select.
// 0:Select second.
// 1:Select minute.

#define WDT_LEVEL                       0x04 // When select level output mode:
// 0:Level low
// 1:Level high

#define WDT_PSWIDTH_1MS                0x00 // When select Pulse mode: 1 ms.
#define WDT_PSWIDTH_20MS               0x01 // When select Pulse mode: 20 ms.
#define WDT_PSWIDTH_100MS              0x02 // When select Pulse mode: 100 ms.
#define WDT_PSWIDTH_4000MS             0x03 // When select Pulse mode: 4 s.

```

Contents

1. Write_Byte Mode
2. Read_Byte Mode
3. Check Device (F75111)
4. SMBus_Clear
- 5 SMBus_Wait
6. SMBus_Busy
7. IO_Write
8. IO_Read
9. Define SMBus IO address
10. Define SMBus pin in SMBus.

1. Write Byte Mode

```
int SMBus::Write_Byte(WORD dwSlave, BYTE pCmd, BYTE pByte)
{
    this->SMBus_Clear();                // Clear SMBus data first

    if (this->SMBus_Busy())              // Check SMBus busy or not, return busy if busy
        return SMBUS_BUSY;

    this->IO_Write(SMBHSTADD , dwSlave & ~1 );    // write address in first variable
    this->IO_Write(SMBHSTCMD , pCmd );            // write command in second variable
    this->IO_Write(SMBHSTDATO , pByte );          // write data in third variable
    this->IO_Write(SMBHSTCNT , SMBHSTCNT_START | SMBHSTCNT_BYTE);
    // Sent start command to SMBus control register

    return (int)this->SMBus_Wait();          // return wait command when SMBus finish the job
}
```

2. Read Byte Mode

```
int SMBus::Read_Byte(WORD dwSlave, BYTE pCmd, BYTE *pByte)
{
    this->SMBus_Clear();                // Clear SMBus data first

    if (this->SMBus_Busy())              // Check SMBus busy or not, return busy if busy
        return SMBUS_BUSY;

    this->IO_Write(SMBHSTADD , dwSlave | 1 );    // write address in first variable
    this->IO_Write(SMBHSTCMD , pCmd );            // write command in second variable
    this->IO_Write(SMBHSTCNT , SMBHSTCNT_START | SMBHSTCNT_BYTE);
    // Sent start command to SMBus control register
```

```

int ret = this->SMBus_Wait(); // Check SMBus Status

if (ret == SMBUS_OK) // If SMBus Stand by
{
    *pByte = (BYTE)this->IO_Read(SMBHSTDAT0) &0xFF; // Get SMBus host data value
}
return ret; // return SMBus status
}

```

3. Check Device (F75111)

```

BOOL SMBus::CheckDevice(WORD wDeviceAddress)
{
    int ret;
    this->SMBus_Clear(); // Clear SMBus data first

    if (this->SMBus_Busy()) // Check SMBus busy or not, return busy if busy
        return SMBUS_BUSY;

    this->IO_Write(SMBHSTADD , wDeviceAddress & ~1 ); // write address in first variable
    this->IO_Write(SMBHSTCNT , SMBHSTCNT_START | SMBHSTCNT_SENDRECV);
    // Sent start command to SMBus control register

    ret = this->SMBus_Wait(); // Check SMBus Status

    if (ret == SMBUS_OK) // Check device exist or not, if exist return true else false
        return TRUE;
    else
        return FALSE;
}

```

4. SMBus_Clear

```

void SMBus::SMBus_Clear()
{
    this->IO_Write(SMBHSTSTS ,0xFF); // Clear SMBus status
    this->IO_Write(SMBHSTDAT0,0x0 ); // Clear SMBus data
}

```

5. SMBus_Wait

```
int SMBus::SMBus_Wait()
{
    int          timeout = SMBUS_TIMEOUT;
    DWORD        dwValue;

    while (timeout-->0)
    {
        Sleep(10);                                // I/O Delay
        dwValue = IO_Read(SMBHSTSTS) & 0x00FF;    // Read Host Status Register
        if( dwValue & SMBHSTSTS_INTR )            // if status value equal
        SMBHSTSTS_INTR, return SMBus_OK
        {
            return SMBUS_OK;
        }
        // if status value equal SMBHSTSTS_FAILED, return SMBHSTSTS_FAILED
        if( dwValue & SMBHSTSTS_FAILED )
        {
            printf("SMBus Action FAILED! %x\n",dwValue);
            return SMBHSTSTS_FAILED;
        }
        // if status value equal SMBHSTSTS_COLLISION, return SMBHSTSTS_COLLISION
        if(dwValue & SMBHSTSTS_COLLISION)
        {
            printf("SMBus Action COLLISION! %x\n",dwValue);
            return SMBHSTSTS_COLLISION;
        }
        // if status value equal SMBHSTSTS_ERROR, return SMBHSTSTS_ERROR
        if(dwValue & SMBHSTSTS_ERROR)
        {
            printf("SMBus Action ERROR! %x\n",dwValue);
            return SMBHSTSTS_ERROR;
        }
    }
    return SMBUS_BUSY;
}
```

6. SMBus_Busy

```
BOOL SMBus::SMBus_Busy()
{
    // Check SMBus status if equal SMBHSTSTS_BUSY
    if( (this->IO_Read(SMBHSTSTS) & SMBHSTSTS_BUSY ) == 1 )
        return TRUE;                // return true
    else
        return FALSE;               // else retrun false
}
```

7. IO_Write

```
void SMBus::IO_Write(WORD dwOffset, BYTE dwData)
{
    // Set dwData value to assigned address
    SetPortVal(this->m_MapIOAddress+dwOffset, dwData,1);
}
```

8. IO_Read

```
BYTE SMBus::IO_Read(WORD dwOffset)
{
    DWORD dwAddrVal;

    // Get dwAddrVal value from assigned address
    GetPortVal(this->m_MapIOAddress+dwOffset,&dwAddrVal,1);
    return (BYTE)(dwAddrVal & 0xFF);
}
```

9. Define SMBus IO address

```
SMBus::SMBus()
{
    this->m_MapIOAddress = 0x500;
}
```

10. Define SMBus pin in SMBus.h

```
#define SMBHSTSTS                                0x00 // SMBus Host Status Register Offset
#define SMBHSTSTS_BUSY                          0x01 // SMBus Host -> 0000-0001 Busy
#define SMBHSTSTS_INTR                          0x02 // SMBus Host -> 0000-0010 Interrupt / completion
#define SMBHSTSTS_ERROR                         0x04 // SMBus Host -> 0000-0100 Error
#define SMBHSTSTS_COLLISION                     0x08 // SMBus Host -> 0000-1000 Collision
#define SMBHSTSTS_FAILED                        0x10 // SMBus Host -> 0001-0000 Failed
//-----
#define SMBHSTCNT                               0x02 // SMBus Host Control Register Offset
#define SMBHSTCNT_KILL                          0x02 // SMBus Host Control -> 0000 0010 Kill
#define SMBHSTCNT_QUICK                         0x00 // SMBus Host Control -> 0000 0000 quick (default)
#define SMBHSTCNT_SENDRECV                     0x04 // SMBus Host Control -> 0000 0100 Byte
#define SMBHSTCNT_BYTE                         0x08 // SMBus Host Control -> 0000 1000 Byte Data
#define SMBHSTCNT_WORD                         0x0c // SMBus Host Control -> 0000 1100 Word Data
#define SMBHSTCNT_BLOCK                         0x14 // SMBus Host Control -> 0001 0100 Block
#define SMBHSTCNT_START                        0x40 // SMBus Host Control -> 0100 0000 Start
//-----
#define SMBHSTCMD                               0x03 // SMBus Host Command Register Offset
#define SMBHSTADD                              0x04 // SMBus Host Address Register Offset
#define SMBHSTDAT0                             0x05 // SMBus Host Data0 Register Offset
#define SMBHSTDAT1                             0x06 // SMBus Host Data1 Register Offset
#define SMBBLKDAT                              0x07 // SMBus Host Block Data Register Offset
//-----
// SMBus Bus Status Code
//-----
#define SMBUS_OK                               0x0 // SMBUS OK
#define SMBUS_BUSY                             0x1 // SMBUS BUSY
#define SMBUS_INT                              0x2 // SMBUS INTR
#define SMBUS_ERROR                           0x4 // SMBUS ERROR
//-----
#define SMBUS_TIMEOUT                          100
```


3-12 LVDS Interface Connector

• LVDS1: 18bit LVDS interface from 945GSE chipset (2x15 pin 1.25mm wafer)

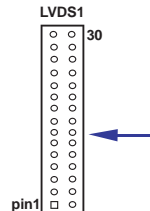
PIN NO.	Description	PIN NO.	Description
1	PWM dimming	2	+5V
3	+LCD(5V or 3.3V)	4	+LCD(5V or 3.3V)
5	NC	6	NC
7	NC	8	NC
9	Channel-0-DATA2+	10	Channel-0-CLK+
11	Channel-0-DATA2-	12	Channel-0-CLK-
13	GND	14	GND
15	Channel-0-DATA1+	16	Channel-0-DATA0+
17	Channel-0-DATA1-	18	Channel-0-DATA0-
19	GND	20	GND
21	+LCD(5V or 3.3V)	22	+LCD(5V or 3.3V)
23	NC	24	NC
25	NC	26	NC
27	NC	28	NC
29	NC	30	NC

Note: 1. BOM default support 18bit / 1channel LVDS.

2. JVL1: LVDS panel +5V/+3.3V Voltage select

3. Pin 1 back light dimming control .

provided 200Hz / 275Hz / 380Hz / 20KHz /25KHz
and adjust PWM duty cycle by software program .



■ LVDS1: 24/48bit LVDS interface from CH7308B (Option) (2x15 pin 1.25mm wafer)

PIN NO.	Description	PIN NO.	Description
1	PWM dimming	2	+5V
3	+LCD(5V or 3.3V)	4	+LCD(5V or 3.3V)
5	Channel-1-DATA3+	6	Channel-0-DATA3+
7	Channel-1-DATA3-	8	Channel-0-DATA3-
9	Channel-0-DATA2+	10	Channel-0-CLK+
11	Channel-0-DATA2-	12	Channel-0-CLK-
13	GND	14	GND
15	Channel-0-DATA1+	16	Channel-0-DATA0+
17	Channel-0-DATA1-	18	Channel-0-DATA0-
19	GND	20	GND
21	+LCD(5V or 3.3V)	22	+LCD(5V or 3.3V)
23	Channel-1-DATA2+	24	Channel-1-CLK+
25	Channel-1-DATA2-	26	Channel-1-CLK-
27	Channel-1-DATA1+	28	Channel-1-DATA0+
29	Channel-1-DATA1-	30	Channel-1-DATA0-

Note:

1. This design need on CH7308B chipset can support 24/48Bits LVDS interface.

2. JVL1: LVDS panel +5V/+3.3V Voltage select

3. Pin 1 back light dimming control .

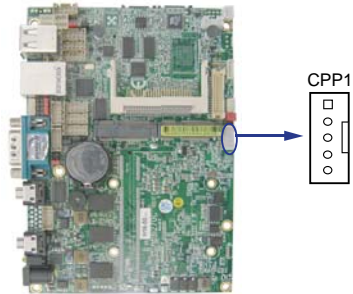
provided 200Hz / 275Hz / 380Hz / 20KHz /25KHz
and adjust PWM duty cycle by software program .

3-13 Panel Power Connector

- **CPP1: Panel Inverter power (5pin 2.0mm wafer)**

PIN NO.	Description
1	+12V or +5V
2	GND
3	BRIGHT
4	ENBKL (3.3V)
5	ENBKL (5V)

Note : 1. JVP1 Inverter Voltage select
2. PIN 3 default pull Low,
3. Attention ! Check Device Power in spec



3-14 Touch screen device (Option)

CT1: Touch screen (2x5 pin 2.0mm wafer)

- **For 8- wire type pin define**

PIN NO.	Description	PIN NO.	Description
1	Bottom	2	Bottom Sense
3	Top Sense	4	Top
5	Right	6	Right Sense
7	Left Sense	8	Left
9	GND	10	KEY

Note: For eight wire type cable Pin 3 and Pin4 need short.

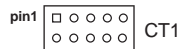
- **For 4- wire type pin define**

PIN NO.	Description	PIN NO.	Description
1	Left	2	N/A
3	N/A	4	Top
5	Right	6	N/A
7	Bottom	8	N/A
9	GND	10	KEY

Note: For four wire type cable Pin 3 and Pin4 need short

- **For 5- wire type pin define**

PIN NO.	Description	PIN NO.	Description
1	UR(H)	2	N/A
3	Sense	4	UL(Y)
5	LR(X)	6	N/A
7	LL(L)	8	N/A
9	GND	10	KEY



3-15 Front Panel Port Header

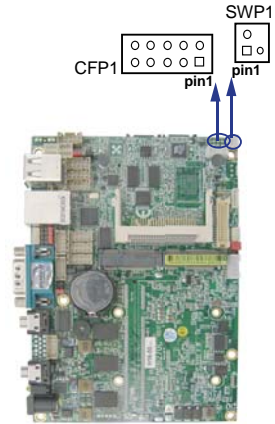
- CFP1 FP connector (2x5pin 2.0mm wafer) (option)

PIN NO.	Description	PIN NO.	Description
1	Power button pin	2	Power button GND
3	Reset pin	4	Reset GND
5	Power LED -	6	Power LED +
7	HDD LED -	8	HDD LED +
9	LAN LED -	10	LAN LED +

Note : Share with SWP1

- SWP1 PB connector (2pin 2.0mm wafer)

PIN NO.	Description
1	Power button pin
2	Power button GND



3-16 DC 12V-IN power connector

- CPI1 : DC 12V-in power Jack

PIN NO.	Description
1	+12V DC-IN
2,3	GND



- CPI11 : DC 12V-in Internal connector (4pin ATX power 4.20mm)

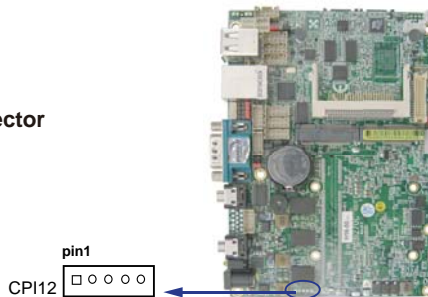
PIN NO.	Description
1,2	GND
3,4	+12V DC-IN

Note: CPI11 share with CPI1 position .

- CPI12 : DC 12V-in Internal connector (5pin 2.0mm wafer)

PIN NO.	Description
1,2,3	+12V DC-IN
4,5	GND

Note: CPI12 share with CPI1 position .

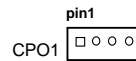


3-17 DC +5/+12V Voltage output connector

- CPO1 : +12V/+5V DC voltage output (4pin 2.0mm Wafer)

PIN NO.	Description
1	+5V
2	GND
3	GND
4	+12V*

* Note : Attention ! Check Device Power in spec

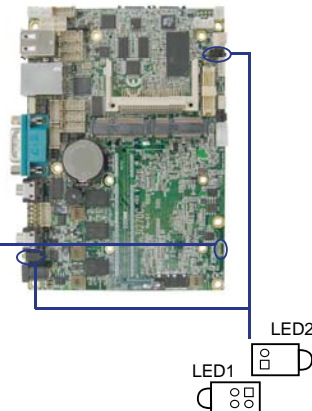


3-18 I2C Bus Interface

- CO1: I2C(SM) bus connector (4 pin 1.25mm wafer) (Option)

PIN NO.	Description
1	+3.3V
2	GND
3	I2C CLK
4	I2C DATA

Note: CO1 for option connector

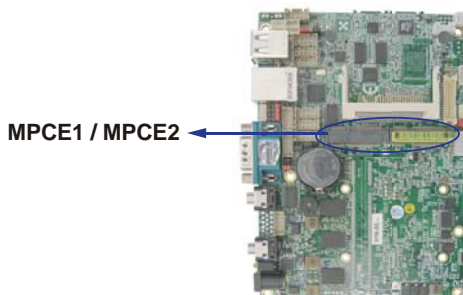


3-19 LED

- LED2 Front side power LED (2pin 2.0mm Blue LED)
- LED1 Rear side LED (2pin 2.0mm)
Down side LED for stand by power LED
Up side LED for power on LED

3-20 Mini card

- MPCE1 / MPCE2 : Support USB and PCIe by one Interface (Mini card socket 52pin)



3-21 Mini PCI card (Option)

- MPC11: Support PCI 2.2 / 2.3 spec for PCI Interface (Mini PCI socket 124pin)

3-22 SATA Interface

- SATA1 / SATA2: Two SATA connector (7pin wafer)

PIN NO.	Description
1	GND
2	DATA TX+
3	DATA TX-
4	GND
5	DATA RX+
6	DATA RX-
7	GND



Chapter 4

Introduction of 3I270A BIOS

The BIOS is a program located in the Flash Memory on the motherboard. This program is a bridge between motherboard and operating system. When you start the computer, the BIOS program gains control. The BIOS first operates an auto-diagnostic test called POST (Power on Self Test) for all the necessary hardware, it detects the entire hardware devices and configures the parameters of the hardware synchronization. After these tasks are completed, BIOS will give control of the computer back to operating system (OS). Since the BIOS is the only channel for hardware and software to communicate with, it is the key factor of system stability and of ensuring your system performance at best.

In the BIOS Setup main menu, you can see several options. We will explain these options in the following pages. First, let us see the function keys you may use here:

Press <Esc> to quit the BIOS Setup.

Press ↑↓←→(up, down, left, right) to choose the option you want to confirm or modify.

Press <F10> to save these parameters and to exit the BIOS Setup menu after you complete the setup of BIOS parameters.

Press Page Up/Page Down or +/- keys to modify the BIOS parameters for the active option.

4-1 Enter Setup

Power on the computer and press key immediately to enter Setup.

If the message disappears before your respond but you still wish to enter Setup, restart the system by turning it OFF then ON button on the system case.

You may also restart the system by simultaneously pressing <Ctrl>, <Alt> and <Delete> keys.

4-2 Getting Help

Main Menu

The on-line description of the highlighted setup function is displayed at the bottom of the screen.

Status Page Setup Menu/ Option Page Setup Menu

Press F1 to pop up a small help window that describes the appropriate keys to use and the possible selections for the highlighted item.

To exit the Help Window, press <Esc>.

4-3 The Main Menu

Once you enter Award BIOS CMOS Setup Utility, the Main Menu will appear on the screen. The Main Menu has fourteen setup functions and two exit choices.

Use arrow keys to select among these items. Press <Enter> to accept or enter the sub-menu.

Phoenix-AwardBIOS CMOS Setup Utility	
▶ Standard CMOS Features	▶ Frequency/Voltage Control
▶ Advanced BIOS Features	Load Optimized Defaults
▶ Advanced Chipset Features	Set Supervisor Password
▶ Integrated Peripherals	Set User Password
▶ Power Management Setup	Save & Exit Setup
▶ PnP/PCI Configurations	Exit Without Saving
▶ PC Health Status	
Esc : Quit	↑ ↓ → ← : Select Item
F10 : Save & Exit Setup	
Time, Date, Hard Disk Type...	

Standard CMOS Features

This Menu is for basic system configurations.

Advanced BIOS Features

This menu is to set the Advanced Features available in your system.

Advanced Chipset Features

This menu is to change the values in the chipset registers and optimize your system performance.

Integrated Peripherals

This menu is to specify your settings for integrated peripherals.

Power Management Setup

This menu is to specify your settings for power management.

PnP/PCI configurations

This entry appears if your system supports PnP/PCI.

PC Health Status

This entry shows your PC health status.

Load Optimized Defaults

Use this menu to load the BIOS default values for optimal system performances.

Set Supervisor/User Password

This menu is to set User and Supervisor Passwords.

Save & Exit Setup

Save CMOS values modified to CMOS and exit setup.

Exit Without Saving

Abandon all the CMOS values modified and exit setup.

4-4 Standard CMOS Features

The items in Standard CMOS Setup Menu are divided into several categories. Each category includes none, one or more than one setup items. Use the arrow keys to highlight the item and then use the <PgUp> or <PgDn> keys to select the value you want to modify with this item.

Phoenix - AwardBIOS CMOS Setup Utility Standard CMOS Features

Date (mm:dd:yy)	Sat, Jun 1 2009	Item Help
Time (hh:mm:ss)	0 : 0 : 0	
► IDE Channel 0 Master	[None]	Menu Level > Change the day, month, year and century
► IDE Channel 0 Slave	[None]	
► IDE Channel 2 Master	[None]	
► IDE Channel 2 Slave	[None]	
► IDE Channel 3 Master	[None]	
► IDE Channel 3 Slave	[None]	
Video	[EGA/VGA]	
Halt On	[No Errors]	
Base Memory	640K	
Extended Memory	1038336K	
Total Memory	1039360K	
↑ ↓ → ← : Move Enter: Select +/-/PU/PD: Value F10: Save ESC: Exit F1: General Help F5: Previous Values F6: Fail-Safe Defaults F7: Optimized Defaults		

IDE Primary/Secondary Master/Slave

Press PgUp/<+> or PgDn/<-> to select Manual, None, Auto type. Note that the specifications of your drive must match with the drive table. The hard disk will not work properly if you enter improper information for this category. If your hard disk drive type is not matched or listed, you can use Manual to define your own drive type manually. If you select Manual, related information is asked to be entered to the following items. Enter the information directly from the keyboard. This information should be provided in the documentation from your hard disk vendor or the system manufacturer.

Video

The setting controls the type of video adapter used for the primary monitor of the system. Settings are: EGA/VGA (default), CGA 40, CGA 80 and Mono.

Halt On

The setting determines whether the system will stop if an error is detected at boot.

Settings are:

All Errors:	The system stops when any error is detected.
No Errors (default):	The system doesn't stop for any detected error.
All, But Keyboard:	The system doesn't stop for a keyboard error.
All, But Diskette:	The system doesn't stop for a disk error.
All, But Disk/ Key:	The system doesn't stop for either a disk or a keyboard error.

4-5 Advanced BIOS Features

Phoenix - AwardBIOS CMOS Setup Utility Advanced BIOS Features

<div>▶ Hard Disk Boot Priority [Press Enter]</div> <div>▶ USB Boot Priority [Press Enter]</div> <div>Virus Warning [Disabled]</div> <div>Quick Power On Self Test [Enabled]</div> <div>First Boot Device [USB-FDD]</div> <div>Second Boot Device [USB-CDROM]</div> <div>Third Boot Device [Hard Disk]</div> <div>Boot Other Device [Enabled]</div> <div>Boot Up NumLock Status [On]</div> <div>Gate A20 Option [Fast]</div> <div>Typematic Rate Setting [Disabled]</div> <div>×Typematic Rate <Chars/Sec> [6]</div> <div>×Typematic Delay <Msec> [250]</div> <div>OS Select For DRAM > 64MB [Non-OS2]</div> <div>HDD S.M.A.R.T Capability [Disabled]</div> <div>Full Screen LOGO Show [Enabled]</div> <div>Small Logo<EPA> Show [Disabled]</div>	<div>Item Help</div> <div>Menu Level ></div>
<div>↑ ↓ → ← :Move Enter:Select +/-/PU/PD:Value F10:Save ESC:Exit F1:General Help</div> <div>F5:Previous Values F6: Fail-Safe Defaults F7:Optimized Defaults</div>	

Hard Disk Boot Priority

Please refer section.

USB Boot Priority

Please refer section.

Virus Warning

The Virus Warning feature can help you protect IDE Hard Disk boot sector.
If this function is enabled, BIOS will show a warning message on screen and alarm beep when someone attempts to write data into this area without permission.

Disabled(default) No warning message appears when anything attempts to access the boot sector or hard disk partition table.

Enabled Activate automatically when the system boots up. The system will show the warning message if anything attempts to access the boot sector of hard disk partition table.

Quick Power On Self Test

This category speeds up Power On Self Test (POST) after you power on the computer. If this is set to Enabled, BIOS will shorten or skip some check items during POST.

Enabled (default) Enable quick POST
Disabled Normal POST

First/Second/Third Boot Device

The BIOS attempts to load the operating system from the devices in the sequence selected in these items.

Settings are: Floppy, LS120, Hard Disk, CDROM, USB-Device, ZIP100, USB-FDD, USB-ZIP, USB-CDROM, LAN and Disabled

Boot Other Device

Setting the option to Enabled allows the system to try to boot from other devices if the system fails to boot from the 1st/2nd/3rd boot device.

Boot Up NumLock Status

On (default) Keypad is numeric keys.
Off Keypad is arrow keys.

Gate A20 Option

Normal The A20 signal is controlled by keyboard controller or chipset hardware.
Fast (default) The A20 signal is controlled by port 92 or chipset specific method.

Typematic Rate Setting

Keystrokes repeat at a rate determined by the keyboard controller. When enabled, the typematic rate and typematic delay can be selected. The settings are: Enabled/Disabled.

Typematic Rate (Chars/Sec)

Sets the number of times a second to repeat a keystroke when you hold the key down.

Settings are: 6, 8, 10, 12, 15, 20, 24, and 30.

Typematic Delay (Msec)

Sets the delay time after the key is held down before it begins to repeat the keystroke. Settings are 250, 500, 750, and 1000.

OS Select For DRAM > 64MB

Allows OS2 to be used with >64MB or DRAM. Settings are Non-OS/2 (default) and OS2. Set to OS/2 if using more than 64MB and running OS/2

4-5-1 Hard Disk Boot Priority

Phoenix - AwardBIOS CMOS Setup Utility
Hard Disk Boot Priority

1. Ch1 S. :xxx-xxxxx 2. Ch2 P. :xxx-xxxxx 3. Bootable Add-in Cards	Item Help
	Menu Level ►
↑ ↓ → ← :Move Enter:Select +/-PU/PD:Value F10:Save ESC:Exit F1:General Help F5:Previous Values F6:Fail-Safe Defaults F7:Optimized Defaults	

Ch1 S/Ch2 P

It allows you to set the priority for hard disk boot. When you press enter, the selections shows the current hard disks used in your system

Bootable Add-in Cards

that is relevant to other boot sources media such as SCSI cards and LAN cards.

4-5-2 USB Boot Priority

Phoenix - AwardBIOS CMOS Setup Utility
USB Boot Priority

1. USB HDD0 : XXX-XXXXX 2. USB HDD1 : XXX-XXXXX	Item Help
	Menu Level ►
↑ ↓ → ← :Move Enter:Select +/-PU/PD:Value F10:Save ESC:Exit F1:General Help F5:Previous Values F6:Fail-Safe Defaults F7:Optimized Defaults	

USB HDD0/USB HDD1

It allows you to set the priority for USB storage boot. When you press enter, the selections shows the current USB storage used in your system

4-6 Advanced Chipset Features

The Advanced Chipset Features Setup option is used to change the values of the chipset registers. These registers control most of the system options in the computer.

Phoenix-AwardBIOS CMOS Setup Utility

Advanced Chipset Features

<div>System BIOS Cacheable [Enabled] Video BIOS Cacheable [Disabled] ▶ PCI Express Root Port Func [Press Enter]</div>	Item Help
	Menu Level ▶
<div>↑ ↓ → ← :Move Enter:Select +/-/PU/PD:Value F10:Save ESC:Exit F1:General Help F5:Previous Values F6:Fail-Safe Defaults F7:Optimized Defaults</div>	

System BIOS Cacheable

Selecting Enabled allows caching of the system BIOS ROM at F0000h-FFFFFh, resulting in better system performance. However, if any program writes to this memory area, a system error may result.

Settings are: Enabled (default) and Disabled.

Video BIOS Cacheable

Select Enabled allows caching of the video BIOS, resulting in better system performance. However, if any program writes to this memory area, a system error may result.

Settings are: Enabled and Disabled (default).

PCI Express Root Port Func

Please refer to section

4-6-1 PCI Express Root Port Func

Phoenix-AwardBIOS CMOS Setup Utility

PCI Express Root Port Func

PCI Express Port 1 [Auto] PCI Express Port 2 [Auto] PCI Express Port 3 [Auto] PCI Express Port 4 [Auto] PCI-E Compliancy Mode [v1.0a]		Item Help
		Menu Level ►
↑ ↓ → ← :Move Enter:Select +/-PU/PD:Value F10:Save ESC:Exit F1:General Help F5:Previous Values F6:Fail-Safe Defaults F7:Optimized Defaults		

PCI Express Port 1/2/3/4

These items are Disable or Enable port 1 to port 4 of PCIe device.

Note: *Port 1 to port 4 will all disables, if you select “Disable” on Port 1 item.*

PCI-E Compliancy Mode

This item determines PCI Express bus in mode?

V1.0a (default) it's compliant PCI Express in v1.0a specification.

V1.0 it's compliant PCI Express in v1.0 specification.

4-7 Integrated Peripherals

Phoenix-AwardBIOS CMOS Setup Utility

Integrated Peripherals

<div>▶ OnChip IDE Device [Press Enter]</div> <div>▶ Onboard Device [Press Enter]</div> <div>▶ Super IO Device [Press Enter]</div> <div>Onboard Serial Port 3 [3E8]</div> <div>Serial Port 3 Use IRQ [IRQ10]</div> <div>Onboard Serial Port 4 [2E8]</div> <div>Serial Port 4 Use IRQ [IRQ10]</div> <div>Onboard Serial Port 5 [4F8]</div> <div>Serial Port 5 Use IRQ [IRQ11]</div> <div>Onboard Serial Port 6 [4E8]</div> <div>Serial Port 6 Use IRQ [IRQ11]</div> <div>COM3 422/485 flow control [Disable]</div> <div>▶ USB Device Setting [Press Enter]</div>	<div>Item Help</div> <div>Menu Level ></div>
<div>↑ ↓ → ← :Move Enter:Select + / - /PU/PD:Value F10:Save ESC:Exit F1:General Help</div> <div>F5:Previous Values F6: Fail-Safe Defaults F7:Optimized Defaults</div>	

OnChip IDE Device Function

Please refer to section

Onboard Device Function

Please refer to section

Super IO Device Function

Please refer to section

Onboard Serial Port 3~6

Select an address for the third to the sixth serial ports.

Settings are: 3F8, 2F8, 3E8, 2E8, Disabled.

Serial Port 3 ~ 6 Use IRQ

Select an interrupt for the third to the sixth serial ports.

Settings are: IRQ3,IRQ4,IRQ5,IRQ6,IRQ7,IRQ10,IRQ11.

The Serial Port 3 ~ 6 default value below:

PORT ADDR/IRQ

COM 3 3E8/IRQ10

COM 4 2E8/IRQ10

COM 5 4F8/IRQ11

COM 6 4E8/IRQ11

COM 3 422/485 flow control

This item allows you to disable or enable RS422 or RS485 function on COM 3, if you need.

USB Device Setting

Please refer to section

4-7-1 OnChip IDE Device Function

Phoenix-AwardBIOS CMOS Setup Utility

OnChip IDE Device			
IDE HDD Block Mode	[Enabled]	Item Help	
IDE DMA transfer access	[Disabled]		
PATA DMA Mode	[Auto]	Menu Level >>	
On-Chip Primary PCI IDE	[Enabled]		
IDE Primary Master PIO	[Auto]		
IDE Primary Slave PIO	[Auto]		
IDE Primary Master UDMA	[Auto]		
IDE Primary Slave UDMA	[Auto]		
On-Chip Secondary PCI IDE	[Enabled]		
IDE Secondary Master PIO	[Auto]		
IDE Secondary Slave PIO	[Auto]		
IDE Secondary Master UDMA	[Auto]		
IDE Secondary Slave UDMA	[Auto]		
*** On-Chip Serial ATA Setting ***			
On-Chip Serial ATA	[Enhanced Mode]		
SATA PORT Speed Setting	Disabled		
X PATA IDE Mode	Secondary		
SATA Port	P0,P2 is Primary		
↑ ↓ → ← :Move Enter:Select + / - /PU/PD:Value F10:Save ESC:Exit F1:General Help			
F5:Previous Values F6: Fail-Safe Defaults F7:Optimized Defaults			

IDE HDD Block Mode

Block mode is also called block transfer, multiple commands, or multiple sector read/write. If your IDE hard drive supports block mode (most new drives do), select Enabled for automatic detection of the optimal number of block read/writes per sector the drive can support. The settings are: Disabled, Enabled (default).

PATA DMA Mode

Force IDE device to work in DMA33 or DMA66/100 mode.

Auto (Default) By system determine automatically.

DMA33 Work in DMA 33 mode.

DMA66/100 Work in DMA 66/100 mode.

Note: That is supported fastest speed by IDE device to determine in DMA66 or DMA100.

OnChip IDE Primary/Secondary

The integrated peripheral controller contains an IDE interface with support for two IDE channels.

Select Enabled to activate each channel separately.

Settings are: Enabled (default), Disabled.

Primary/Secondary Master/Slave PIO

The four IDE PIO (Programmed Input/Output) fields let you set a PIO mode (0-4) for each of the four IDE devices that the onboard IDE interface supports. Modes 0 through 4 provide successively increased performance. In Auto mode, the system automatically determines the best mode for each device. The settings are: Auto (default), Mode 0, Mode 1, Mode 2, Mode 3 and Mode 4.

Primary/Secondary Master/Slave UDMA

Ultra DMA/33 implementation is possible only if your IDE hard drive supports it and the operating environment includes a DMA driver (Windows 95 OSR2 or a third-party IDE bus master driver) You're your hard drive and your system software both support Ultra DMA/33 and Ultra DMA/66, select Auto to enable BIOS support.

Settings are: Auto(default), Disabled .

OnChip Serial SATA

That it has 5 choices as below:

Disable	Disable SATA Controller.
Auto	By system determine automatically.
Combined Mode	PATA and SATA are combined. Max of 2 IDE drives in each channel.
Enhanced Mode (default)	Enable both SATA and PATA. Max of 6 IDE drives are supported.
SATA Only	SATA is operating in legacy mode.

Notice:

That is can not install operation system on SATA hard disk in Enhanced Mode and Lock SSD, because SSD is locked when during installation will write boot data in MBR of SSD.

To clear the effect has 2 solutions as below:

1. Unlock SSD and format, then to install.
2. Change to ""Combined Mode"" then to install.

4-7-2 Onbard Device

Phoenix-AwardBIOS CMOS Setup Utility Onboard Device

SSD Write protect [Unlock]	Item Help
	Menu Level >>
↑ ↓ → ← : Move Enter : Select + / - / PU / PD : Value F10 : Save ESC : Exit F1 : General Help F5 : Previous Values F6 : Fail-Safe Defaults F7 : Optimized Defaults	

SSD Write protect (OPT)

This item can help to protect your data to write/delete in SSD.

UnLock (Default) Unprotect SSD.

Lock Protect SSD.

Note: *Maybe it can't boot in OS or can't install OS if operation system in SSD and selected ""Lock"".*

4-7-3 Onboard Super IO Function

Phoenix-AwardBIOS CMOS Setup Utility Super IO Device

Onboard Serial Port 1 [3F8/IRQ4] Onboard Serial Port 2 [2F8/IRQ3] PWRON After PWR-Fail [Former-Sts]	Item Help
	Menu Level >>
↑ ↓ → ← : Move Enter : Select + / - / PU / PD : Value F10 : Save ESC : Exit F1 : General Help F5 : Previous Values F6 : Fail-Safe Defaults F7 : Optimized Defaults	

Onboard Serial Port 1&2

Select an address and corresponding interrupt for the first and the second serial ports.
Settings are: 3F8/IRQ4, 2E8/IRQ3, 3E8/IRQ4, 2F8/IRQ3, Disabled, Auto.

PWRON After PWR-fail

This item specifies whether your system will reboot after a power failure or interrupt occurs.
Settings are: Off: Leaves the computer in the power off state.

On: Leaves the computer in the power on state.

Former-Sts: Restores the system to the status before power failure or interrupt occurred.

4-7-4 USB Device Function

Phoenix-AwardBIOS CMOS Setup Utility
USB Device Function

USB 1.0 Controller	[Enabled]	Item Help
USB 2.0 Controller	[Enabled]	
USB Operation Mode	[High Speed]	Menu Level >>
USB Keyboard Function	[Enabled]	
USB Mouse Function	[Enabled]	
USB Storage Function	[Enabled]	
↑ ↓ → ← :Move Enter:Select + / PU/PD:Value F10:Save ESC:Exit F1:General Help		
F5:Previous Values F6: Fail-Safe Defaults F7:Optimized Defaults		

USB 1.0 Controller

Select Enabled if your system contains a Universal Serial Bus (USB) controller and you have a USB peripherals.

Settings are: Enabled (default), Disabled.

USB 2.0 Controller

Select Enabled if your system contains a Enhanced Serial Bus (USB) controller and you have a USB peripherals.

Settings are: Enabled (default), Disabled.

USB Operation Mode

High speed:

If USB device was high speed device, then it operated on high speed mode. If USB device was full/low speed device, then it operated on full/low speed mode.

Full/Low Speed:

All of USB device operated on full/low speed mode.

USB Keyboard Function/ USB MOUSE Function/USB Storage Function

Select Enabled if your system contains a Universal Serial Bus (USB) controller and you have a USB keyboard or USB mouse and USB storage.

Settings are: Enabled (default), Disabled.

4-8 Power Management Setup

The Power Management Setup allows you to configure your system to most effectively save energy saving while operating in a manner consistent with your own style of computer use.

Phoenix-AwardBIOS CMOS Setup Utility
Power Management Setup

ACPI Function	[Enabled]	Item Help
Power Management	[User Define]	
Video Off Method	[DPMS]	Menu Level >
Video Off In Suspend	[Yes]	
MODEM Use IRQ	[3]	
Suspend Mode	[Disable]	
HDD Power Down	[Disable]	
Soft-Off by RWR-BTNN	[Instant-Off]	
Wake-Up by PCI card	[Disable]	
Resume by Alarm	[Disable]	
xDate (of Month)Alarm	0	
xTime (hh:mm:ss)Alarm	0: 0: 0	
** Reload Global Timer Events**		
Primary IDE 0	[Disabled]	
Primary IDE 1	[Disabled]	
Secondary IDE 0	[Disabled]	
Secondary IDE 1	[Disabled]	
FDD, COM, LPT Port	[Disabled]	
PCI PIRQ[A-D]#	[Disabled]	
↑ ↓ → ← :Move Enter:Select +/-/PU/PD:Value F10:Save ESC:Exit F1:General Help		
F5:Previous Values F6: Fail-Safe Defaults F7:Optimized Defaults		

ACPI Function

This item allows you to Enabled/Disabled the Advanced Configuration and Power Management (ACPI).

Settings are: Enabled (default) and Disabled.

Video Off Method

This determines the manner in which the monitor is blanked.

- DPMS** (default) Initial display power management signaling.
- Blank Screen** This option only writes blanks to the video buffer.
- V/H SYNC+Blank** This selection will cause the system to turn off the vertical and horizontal synchronization ports and write blanks to the video buffer.

Video Off in Suspend

This determines the manner in which the monitor is blanked.

- Yes** Video will off.
- No** Video always On.

MODEM Use IRQ

This determines the IRQ in which the MODEM can use.

The settings are: 3(default), 4, 5, 7, 9, 10, 11, NA.

Resume by Alarm

This function is for setting date and time for your computer to boot up. During Disabled, you cannot use this function. During Enabled, choose the Date and Time Alarm:

Date(of month) Alarm

You can choose which month the system will boot up. Set to 0, to boot every day.

Time(hh:mm:ss) Alarm

You can choose what hour, minute and second the system will boot up.

Note: If you have change the setting, you must let the system boot up until it goes to the operating system, before this function will work

4-9 PnP/PCI Configuration Setup

This section describes how to configure the PCI bus system. PCI, or Personal Computer Interconnect, is a system which allows I/O devices to operate at the speed the CPU itself keeps when CPU communicates with its own special components. This section covers some very technical items and we strongly recommended that only experienced users should make any change to the default settings.

Phoenix-AwardBIOS CMOS Setup Utility
PnP/PCI Configurations

		Item Help
Init Display First	[Onboard]	Menu Level >
Reset Configuration Data	[Disabled]	
Resources Controlled By	[Auto(ESCD)]	
× IRQ Resources	Press Enter	
PCI/VGA Palette Snoop	[Disabled]	
↑ ↓ → ← : Move Enter : Select +/- / PU / PD : Value F10 : Save ESC : Exit F1 : General Help		
F5 : Previous Values F6 : Fail-Safe Defaults F7 : Optimized Defaults		

Reset Configuration Data

Normally, you leave this field Disabled. Select Enabled to reset Extended System Configuration Data (ESCD) when you exit Setup if you have installed a new add-on and the system reconfiguration has caused such a serious conflict that the operating system can not boot. The settings are: Enabled and Disabled.

Resource Controlled By

The Award Plug and Play BIOS can automatically configure all of the boot and Plug and Play compatible devices. However, this capability means absolutely nothing unless you are using a Plug and Play operating system such as Windows 95/98. If you set this field to "manual", choose a specific resource by going into each sub menu that follows this field (a sub menu is preceded by a ">").
Settings are: Auto(ESCD) (default) or Manual.

IRQ Resources

Please refer section.

PCI/VGA Palette Snoop

Leave this field at Disabled. The settings are Enabled or Disabled.

4-9-1 IRQ Resources

When resources are controlled manually, each system interrupt is assigned a type, depending on the type of device using the interrupt.

Phoenix-AwardBIOS CMOS Setup Utility
IRQ Resources

IRQ-3 assigned to	[PCI Device]	Item Help	
IRQ-4 assigned to	[PCI Device]		
IRQ-5 assigned to	[PCI Device]	Menu Level Legacy ISA for devices compliant with the original PC AT bus specification, PCI/ISA PnP for devices compliant with the Plug and Play standard whether designed for PCI or ISA bus architecture	
IRQ-7 assigned to	[PCI Device]		
IRQ-9 assigned to	[PCI Device]		
IRQ-10 assigned to	[PCI Device]		
IRQ-11 assigned to	[PCI Device]		
IRQ-12 assigned to	[PCI Device]		
IRQ-14 assigned to	[PCI Device]		
IRQ-15 assigned to	[PCI Device]		
← →:Move Enter:Select +/-/PU/PD:Value F10:Save			ESC:Exit F1:General Help
F5:Previous Values F6:Fail-Safe Defaults		F7:Optimized Defaults	

4-10 PC Health Status

This section shows the status of your CPU, Fan, and overall system.
This is only available when there is Hardware Monitor function onboard.

Phoenix-AwardBIOS CMOS Setup Utility		
PC Health Status		
Vcore		0.86V
+ 1.05V		1.02V
+ 3.33V		3.29V
+ 5.00V		5.02V
+ 12.0V		11.84V
Voltage Battery		3.02V
System Temp.		55°C
CPU Temp.		63°C
		Item Help
		Menu Level >
↑ ↓ → ←:Move Enter:Select +/-/PU/PD:Value F10:Save ESC:Exit F1:General Help		
F5:Previous Values F6:Fail-Safe Defaults F7:Optimized Defaults		

Current CPU Temperature/Current System Temp/Current FAN1,FAN2 Speed/ Vcore/+1.05V/+3.3V/+5V/+12V

This will show the CPU/FAN/System voltage chart and FAN Speed

4-11 Frequency/Voltage Control

This section is to set CPU Frequency Control.

Phoenix-AwardBIOS CMOS Setup Utility	
Frequency/Voltage Control	
Spread Spectrum [Enabled]	Item Help
	Menu Level >
↑ ↓ → ←:Move Enter:Select +/-/PU/PD:Value F10:Save ESC:Exit F1:General Help	
F5:Previous Values F6:Fail-Safe Defaults F7:Optimized Defaults	

Spread Spectrum

This item allows you to set the CPU Host/PCI clock Spread Spectrum.
Settings are: Disabled or Enabled. (default)

4-12 Load Fail-Safe Defaults

When you press <Enter> on this item, you get a confirmation dialog box with a message similar to:

Load Optimized Defaults (Y/N)? N

Press <Y> to load the default values that are factory settings for optimal system operation performance.

4-13 Set Supervisor/ User Password

You can set supervisor password, user password, or both. The differences are:

Supervisor password: You can enter the setup menus and change the options.

User password: You can enter the setup menus but do not have the right to change the options. When you select this function, the following message will appear at the center of the screen to assist you in creating a password.

ENTER PASSWORD:

Type the password, up to eight characters in length, and press <Enter>. The password typed will clear any previous password from CMOS memory. You will be asked to confirm the password. Type the password again and press <Enter>. You may also press <Esc> to abort the selection without entering password. To disable a password, just press <Enter> when you are prompted to enter the password. A message will confirm if you want to disable the password. Once the password is disabled, the system will boot and you can enter Setup menus freely.

PASSWORD DISABLED.

When a password has been enabled, you have to enter it every time before you enter the Setup. This prevents an unauthorized person from changing any part of your system configuration.

Chapter 5

Introduction of 31270C BIOS

The BIOS is a program located in the Flash Memory on the motherboard. This program is a bridge between motherboard and operating system. When you start the computer, the BIOS program gains control. The BIOS first operates an auto-diagnostic test called POST (Power on Self Test) for all the necessary hardware, it detects the entire hardware devices and configures the parameters of the hardware synchronization. After these tasks are completed, BIOS will give control of the computer back to operating system (OS). Since the BIOS is the only channel for hardware and software to communicate with, it is the key factor of system stability and of ensuring your system performance at best.

In the BIOS Setup main menu, you can see several options. We will explain these options in the following pages. First, let us see the function keys you may use here:

Press <Esc> to quit the BIOS Setup.

Press ↑↓←→(up, down, left, right) to choose the option you want to confirm or modify.

Press <F10> to save these parameters and to exit the BIOS Setup menu after you complete the setup of BIOS parameters.

Press Page Up/Page Down or +/- keys to modify the BIOS parameters for the active option.

5-1 Enter Setup

Power on the computer and press key immediately to enter Setup.

If the message disappears before your respond but you still wish to enter Setup, restart the system by turning it OFF then ON button on the system case.

You may also restart the system by simultaneously pressing <Ctrl>, <Alt> and <Delete> keys.

5-2 Getting Help

Main Menu

The on-line description of the highlighted setup function is displayed at the bottom of the screen.

Status Page Setup Menu/ Option Page Setup Menu

Press F1 to pop up a small help window that describes the appropriate keys to use and the possible selections for the highlighted item.

To exit the Help Window, press <Esc>.

5-3 The Main Menu

Once you enter Award BIOS CMOS Setup Utility, the Main Menu will appear on the screen. The Main Menu has fourteen setup functions and two exit choices.

Use arrow keys to select among these items. Press <Enter> to accept or enter the sub-menu.

Phoenix-AwardBIOS CMOS Setup Utility	
<ul style="list-style-type: none">▶ Standard CMOS Features▶ Advanced BIOS Features▶ Advanced Chipset Features▶ Integrated Peripherals▶ Power Management Setup▶ PnP/PCI Configurations▶ PC Health Status	<ul style="list-style-type: none">▶ Frequency/Voltage ControlLoad Optimized DefaultsSet Supervisor PasswordSet User PasswordSave & Exit SetupExit Without Saving
Esc : Quit	
F10 : Save & Exit Setup	
↑ ↓ → ← : Select Item	
Time, Date, Hard Disk Type...	

Standard CMOS Features

This Menu is for basic system configurations.

Advanced BIOS Features

This menu is to set the Advanced Features available in your system.

Advanced Chipset Features

This menu is to change the values in the chipset registers and optimize your system performance.

Integrated Peripherals

This menu is to specify your settings for integrated peripherals.

Power Management Setup

This menu is to specify your settings for power management.

PnP/PCI configurations

This entry appears if your system supports PnP/PCI.

PC Health Status

This entry shows your PC health status.

Load Optimized Defaults

Use this menu to load the BIOS default values for optimal system performances.

Set Supervisor/User Password

This menu is to set User and Supervisor Passwords.

Save & Exit Setup

Save CMOS values modified to CMOS and exit setup.

Exit Without Saving

Abandon all the CMOS values modified and exit setup.

5-4 Standard CMOS Features

The items in Standard CMOS Setup Menu are divided into several categories. Each category includes none, one or more than one setup items. Use the arrow keys to highlight the item and then use the <PgUp> or <PgDn> keys to select the value you want to modify with this item.

Phoenix - AwardBIOS CMOS Setup Utility Standard CMOS Features

Date (mm:dd:yy)	Sat, Jun 1 2009	Item Help
Time (hh:mm:ss)	0 : 0 : 0	
► IDE Channel 0 Master	[None]	Menu Level > Change the day, month, year and century
► IDE Channel 0 Slave	[None]	
► IDE Channel 2 Master	[None]	
► IDE Channel 2 Slave	[None]	
► IDE Channel 3 Master	[None]	
► IDE Channel 3 Slave	[None]	
Video	[EGA/VGA]	
Halt On	[No Errors]	
Base Memory	640K	
Extended Memory	1038336K	
Total Memory	1039360K	
↑ ↓ → ← : Move Enter: Select +/-/PU/PD: Value F10: Save ESC: Exit F1: General Help F5: Previous Values F6: Fail-Safe Defaults F7: Optimized Defaults		

IDE Primary/Secondary Master/Slave

Press PgUp/<+> or PgDn/<-> to select Manual, None, Auto type. Note that the specifications of your drive must match with the drive table. The hard disk will not work properly if you enter improper information for this category. If your hard disk drive type is not matched or listed, you can use Manual to define your own drive type manually. If you select Manual, related information is asked to be entered to the following items. Enter the information directly from the keyboard. This information should be provided in the documentation from your hard disk vendor or the system manufacturer.

Video

The setting controls the type of video adapter used for the primary monitor of the system. Settings are: EGA/VGA (default), CGA 40, CGA 80 and Mono.

Halt On

The setting determines whether the system will stop if an error is detected at boot.

Settings are:

All Errors:	The system stops when any error is detected.
No Errors (default):	The system doesn't stop for any detected error.
All, But Keyboard:	The system doesn't stop for a keyboard error.
All, But Diskette:	The system doesn't stop for a disk error.
All, But Disk/ Key:	The system doesn't stop for either a disk or a keyboard error.

5-5 Advanced BIOS Features

Phoenix - AwardBIOS CMOS Setup Utility Advanced BIOS Features

<div>▶ Hard Disk Boot Priority [Press Enter]</div> <div>▶ USB Boot Priority [Press Enter]</div> <div>Virus Warning [Disabled]</div> <div>Quick Power On Self Test [Enabled]</div> <div>First Boot Device [USB-FDD]</div> <div>Second Boot Device [USB-CDROM]</div> <div>Third Boot Device [Hard Disk]</div> <div>Boot Other Device [Enabled]</div> <div>Boot Up NumLock Status [On]</div> <div>Gate A20 Option [Fast]</div> <div>Typematic Rate Setting [Disabled]</div> <div>×Typematic Rate <Chars/Sec> [6]</div> <div>×Typematic Delay <Msec> [250]</div> <div>OS Select For DRAM > 64MB [Non-OS2]</div> <div>HDD S.M.A.R.T Capability [Disabled]</div> <div>Full Screen LOGO Show [Enabled]</div> <div>Small Logo<EPA> Show [Disabled]</div>	<div>Item Help</div> <div>Menu Level ></div>
<div>↑ ↓ → ← :Move Enter:Select +/-/PU/PD:Value F10:Save ESC:Exit F1:General Help</div> <div>F5:Previous Values F6: Fail-Safe Defaults F7:Optimized Defaults</div>	

Hard Disk Boot Priority

Please refer section.

USB Boot Priority

Please refer section.

Virus Warning

The Virus Warning feature can help you protect IDE Hard Disk boot sector.
If this function is enabled, BIOS will show a warning message on screen and alarm beep when someone attempts to write data into this area without permission.

Disabled(default) No warning message appears when anything attempts to access the boot sector or hard disk partition table.

Enabled Activate automatically when the system boots up. The system will show the warning message if anything attempts to access the boot sector of hard disk partition table.

Quick Power On Self Test

This category speeds up Power On Self Test (POST) after you power on the computer. If this is set to Enabled, BIOS will shorten or skip some check items during POST.

Enabled (default) Enable quick POST
Disabled Normal POST

First/Second/Third Boot Device

The BIOS attempts to load the operating system from the devices in the sequence selected in these items.

Settings are: Floppy, LS120, Hard Disk, CDROM, USB-Device, ZIP100, USB-FDD, USB-ZIP, USB-CDROM, LAN and Disabled

Boot Other Device

Setting the option to Enabled allows the system to try to boot from other devices if the system fails to boot from the 1st/2nd/3rd boot device.

Boot Up NumLock Status

On (default) Keypad is numeric keys.
Off Keypad is arrow keys.

Gate A20 Option

Normal The A20 signal is controlled by keyboard controller or chipset hardware.
Fast (default) The A20 signal is controlled by port 92 or chipset specific method.

Typematic Rate Setting

Keystrokes repeat at a rate determined by the keyboard controller. When enabled, the typematic rate and typematic delay can be selected. The settings are: Enabled/Disabled.

Typematic Rate (Chars/Sec)

Sets the number of times a second to repeat a keystroke when you hold the key down.

Settings are: 6, 8, 10, 12, 15, 20, 24, and 30.

Typematic Delay (Msec)

Sets the delay time after the key is held down before it begins to repeat the keystroke. Settings are 250, 500, 750, and 1000.

OS Select For DRAM > 64MB

Allows OS2 to be used with >64MB or DRAM. Settings are Non-OS/2 (default) and OS2. Set to OS/2 if using more than 64MB and running OS/2

5-5-1 Hard Disk Boot Priority

Phoenix - AwardBIOS CMOS Setup Utility
Hard Disk Boot Priority

1. Ch1 S. :xxx-xxxxx 2. Ch2 P. :xxx-xxxxx 3. Bootable Add-in Cards	Item Help
	Menu Level ►
↑ ↓ → ← :Move Enter:Select +/-PU/PD:Value F10:Save ESC:Exit F1:General Help F5:Previous Values F6:Fail-Safe Defaults F7:Optimized Defaults	

Ch1 S/Ch2 P

It allows you to set the priority for hard disk boot. When you press enter, the selections shows the current hard disks used in your system

Bootable Add-in Cards

that is relevant to other boot sources media such as SCSI cards and LAN cards.

5-5-2 USB Boot Priority

Phoenix - AwardBIOS CMOS Setup Utility
USB Boot Priority

1. USB HDD0 : XXX-XXXXX 2. USB HDD1 : XXX-XXXXX	Item Help
	Menu Level ►
↑ ↓ → ← :Move Enter:Select +/-PU/PD:Value F10:Save ESC:Exit F1:General Help F5:Previous Values F6:Fail-Safe Defaults F7:Optimized Defaults	

USB HDD0/USB HDD1

It allows you to set the priority for USB storage boot. When you press enter, the selections shows the current USB storage used in your system

5-6 Advanced Chipset Features

The Advanced Chipset Features Setup option is used to change the values of the chipset registers. These registers control most of the system options in the computer.

Phoenix-AwardBIOS CMOS Setup Utility

Advanced Chipset Features

System BIOS Cacheable	[Enabled]	Item Help
Video BIOS Cacheable	[Disabled]	
▶ PCI Express Root Port Func	[Press Enter]	Menu Level ▶
 ** VGA Setting ** 		
On-Chip Frame Buffer Size	[8MB]	
DVMT Mode	[DVMT]	
DVMT/FIXED Memory Size	[128MB]	
Boot Display	[CRT+LVDS]	
Panel Number	[1024 X 768 18Bit]	
↑ ↓ ← → : Move Enter: Select + / - : PU/PD Value F10: Save ESC: Exit F1: General Help F5: Previous Values F6: Fail-Safe Defaults F7: Optimized Defaults		

System BIOS Cacheable

Selecting Enabled allows caching of the system BIOS ROM at F0000h-FFFFFh, resulting in better system performance. However, if any program writes to this memory area, a system error may result.

Settings are: Enabled (default) and Disabled.

Video BIOS Cacheable

Select Enabled allows caching of the video BIOS, resulting in better system performance. However, if any program writes to this memory area, a system error may result.

Settings are: Enabled and Disabled (default).

PCI Express Root Port Func

Please refer to section

On-chip Frame Buffer Size

This item allows you to select on-chip buffer size

The item choice: 1MB, 8MB (default)

DVMT Mode

This item allows you to select the DVMT mode.

The choice: FIXED, DVMT (default), BOTH

DVMT/FIXED Memory Size

This item allows you to select the DVMT or FIXED graphics memory size.

The memory size choice: 64MB, 128MB (default), 224MB

Boot Display

This item allows you to select the display device.

Display Device: CRT, LVDS, CRT+LVDS (default)

Panel Number

This item allows you to select the panel resolution

1. 640 X 480 18bit
2. 800 X 600 18bit *
3. 1024 X 768 18bit * (default)
4. 1280 X 1024 18bit
5. 1400 X 1050 18bit
6. 1400 X 1050 18bit
7. 1600 X 1200 18bit
8. 1280 X 768 18bit
9. 1680 X 1050 18bit
10. 1920 X 1200 18bit
11. 1280 X 800 18bit
12. 1280 X 600 18bit

5-6-1 PCI Express Root Port Func

Phoenix-AwardBIOS CMOS Setup Utility

PCI Express Root Port Func

PCI Express Port 1 [Auto] PCI Express Port 2 [Auto] PCI Express Port 3 [Auto] PCI Express Port 4 [Auto] PCI-E Compliancy Mode [v1.0a]		Item Help
		Menu Level ►
↑ ↓ → ← :Move Enter:Select +/-PU/PD:Value F10:Save ESC:Exit F1:General Help F5:Previous Values F6:Fail-Safe Defaults F7:Optimized Defaults		

PCI Express Port 1/2/3/4

These items are Disable or Enable port 1 to port 4 of PCIe device.

Note: *Port 1 to port 4 will all disables, if you select “Disable” on Port 1 item.*

PCI-E Compliancy Mode

This item determines PCI Express bus in mode?

V1.0a (default) it's compliant PCI Express in v1.0a specification.

V1.0 it's compliant PCI Express in v1.0 specification.

5-7 Integrated Peripherals

Phoenix-AwardBIOS CMOS Setup Utility

Integrated Peripherals

<div>▶ OnChip IDE Device [Press Enter]</div> <div>▶ Onboard Device [Press Enter]</div> <div>▶ Super IO Device [Press Enter]</div> <div>Onboard Serial Port 3 [3E8]</div> <div>Serial Port 3 Use IRQ [IRQ10]</div> <div>Onboard Serial Port 4 [2E8]</div> <div>Serial Port 4 Use IRQ [IRQ10]</div> <div>Onboard Serial Port 5 [4F8]</div> <div>Serial Port 5 Use IRQ [IRQ11]</div> <div>Onboard Serial Port 6 [4E8]</div> <div>Serial Port 6 Use IRQ [IRQ11]</div> <div>COM3 422/485 flow control [Disable]</div> <div>▶ USB Device Setting [Press Enter]</div>	<div>Item Help</div> <div>Menu Level ></div>
<div>↑ ↓ → ← :Move Enter:Select + / - /PU/PD:Value F10:Save ESC:Exit F1:General Help</div> <div>F5:Previous Values F6: Fail-Safe Defaults F7:Optimized Defaults</div>	

OnChip IDE Device Function

Please refer to section

Onboard Device Function

Please refer to section

Super IO Device Function

Please refer to section

Onboard Serial Port 3~6

Select an address for the third to the sixth serial ports.

Settings are: 3F8, 2F8, 3E8, 2E8, Disabled.

Serial Port 3 ~ 6 Use IRQ

Select an interrupt for the third to the sixth serial ports.

Settings are: IRQ3,IRQ4,IRQ5,IRQ6,IRQ7,IRQ10,IRQ11.

The Serial Port 3 ~ 6 default value below:

PORT ADDR/IRQ

COM 3 3E8/IRQ10

COM 4 2E8/IRQ10

COM 5 4F8/IRQ11

COM 6 4E8/IRQ11

COM 3 422/485 flow control

This item allows you to disable or enable RS422 or RS485 function on COM 3, if you need.

USB Device Setting

Please refer to section

5-7-1 OnChip IDE Device Function

Phoenix-AwardBIOS CMOS Setup Utility

OnChip IDE Device	
IDE HDD Block Mode	[Enabled]
IDE DMA transfer access	[Disabled]
PATA DMA Mode	[Auto]
On-Chip Primary PCI IDE	[Enabled]
IDE Primary Master PIO	[Auto]
IDE Primary Slave PIO	[Auto]
IDE Primary Master UDMA	[Auto]
IDE Primary Slave UDMA	[Auto]
On-Chip Secondary PCI IDE	[Enabled]
IDE Secondary Master PIO	[Auto]
IDE Secondary Slave PIO	[Auto]
IDE Secondary Master UDMA	[Auto]
IDE Secondary Slave UDMA	[Auto]
*** On-Chip Serial ATA Setting ***	
On-Chip Serial ATA	[Enhanced Mode]
SATA PORT Speed Setting	Disabled
X PATA IDE Mode	Secondary
SATA Port	P0,P2 is Primary
Item Help	
Menu Level >>	
↑ ↓ → ← :Move Enter:Select + / - /PU/PD:Value F10:Save ESC:Exit F1:General Help	
F5:Previous Values F6: Fail-Safe Defaults F7:Optimized Defaults	

IDE HDD Block Mode

Block mode is also called block transfer, multiple commands, or multiple sector read/write. If your IDE hard drive supports block mode (most new drives do), select Enabled for automatic detection of the optimal number of block read/writes per sector the drive can support. The settings are: Disabled, Enabled (default).

PATA DMA Mode

Force IDE device to work in DMA33 or DMA66/100 mode.

Auto (Default) By system determine automatically.

DMA33 Work in DMA 33 mode.

DMA66/100 Work in DMA 66/100 mode.

Note: That is supported fastest speed by IDE device to determine in DMA66 or DMA100.

OnChip IDE Primary/Secondary

The integrated peripheral controller contains an IDE interface with support for two IDE channels.

Select Enabled to activate each channel separately.

Settings are: Enabled (default), Disabled.

Primary/Secondary Master/Slave PIO

The four IDE PIO (Programmed Input/Output) fields let you set a PIO mode (0-4) for each of the four IDE devices that the onboard IDE interface supports. Modes 0 through 4 provide successively increased performance. In Auto mode, the system automatically determines the best mode for each device. The settings are: Auto (default), Mode 0, Mode 1, Mode 2, Mode 3 and Mode 4.

Primary/Secondary Master/Slave UDMA

Ultra DMA/33 implementation is possible only if your IDE hard drive supports it and the operating environment includes a DMA driver (Windows 95 OSR2 or a third-party IDE bus master driver) You're your hard drive and your system software both support Ultra DMA/33 and Ultra DMA/66, select Auto to enable BIOS support.

Settings are: Auto(default), Disabled.

OnChip Serial SATA

That it has 5 choices as below:

Disable	Disable SATA Controller.
Auto	By system determine automatically.
Combined Mode	PATA and SATA are combined. Max of 2 IDE drives in each channel.
Enhanced Mode (default)	Enable both SATA and PATA. Max of 6 IDE drives are supported.
SATA Only	SATA is operating in legacy mode.

Notice:

That is can not install operation system on SATA hard disk in Enhanced Mode and Lock SSD, because SSD is locked when during installation will write boot data in MBR of SSD.

To clear the effect has 2 solutions as below:

1. Unlock SSD and format, then to install.
2. Change to ""Combined Mode"" then to install.

5-7-2 Onbard Device

Phoenix-AwardBIOS CMOS Setup Utility Onboard Device

SSD Write protect [Unlock]	Item Help
	Menu Level >>
↑ ↓ → ← : Move Enter : Select + / - / PU / PD : Value F10 : Save ESC : Exit F1 : General Help F5 : Previous Values F6 : Fail-Safe Defaults F7 : Optimized Defaults	

SSD Write protect (OPT)

This item can help to protect your data to write/delete in SSD.

UnLock (Default) Unprotect SSD.

Lock Protect SSD.

Note: *Maybe it can't boot in OS or can't install OS if operation system in SSD and selected ""Lock"".*

5-7-3 Onboard Super IO Function

Phoenix-AwardBIOS CMOS Setup Utility Super IO Device

Onboard Serial Port 1 [3F8/IRQ4] Onboard Serial Port 2 [2F8/IRQ3] PWRON After PWR-Fail [Former-Sts]	Item Help
	Menu Level >>
↑ ↓ → ← : Move Enter : Select + / - / PU / PD : Value F10 : Save ESC : Exit F1 : General Help F5 : Previous Values F6 : Fail-Safe Defaults F7 : Optimized Defaults	

Onboard Serial Port 1&2

Select an address and corresponding interrupt for the first and the second serial ports.
Settings are: 3F8/IRQ4, 2E8/IRQ3, 3E8/IRQ4, 2F8/IRQ3, Disabled, Auto.

PWRON After PWR-fail

This item specifies whether your system will reboot after a power failure or interrupt occurs.
Settings are: Off: Leaves the computer in the power off state.

On: Leaves the computer in the power on state.

Former-Sts: Restores the system to the status before power failure or interrupt occurred.

5-7-4 USB Device Function

Phoenix-AwardBIOS CMOS Setup Utility
USB Device Function

USB 1.0 Controller	[Enabled]	Item Help
USB 2.0 Controller	[Enabled]	
USB Operation Mode	[High Speed]	Menu Level >>
USB Keyboard Function	[Enabled]	
USB Mouse Function	[Enabled]	
USB Storage Function	[Enabled]	
↑ ↓ → ← : Move Enter : Select + / : PU/PD : Value F10 : Save ESC : Exit F1 : General Help		
F5 : Previous Values F6 : Fail-Safe Defaults F7 : Optimized Defaults		

USB 1.0 Controller

Select Enabled if your system contains a Universal Serial Bus (USB) controller and you have a USB peripherals.

Settings are: Enabled (default), Disabled.

USB 2.0 Controller

Select Enabled if your system contains a Enhanced Serial Bus (USB) controller and you have a USB peripherals.

Settings are: Enabled (default), Disabled.

USB Operation Mode

High speed:

If USB device was high speed device, then it operated on high speed mode. If USB device was full/low speed device, then it operated on full/low speed mode.

Full/Low Speed:

All of USB device operated on full/low speed mode.

USB Keyboard Function/ USB MOUSE Function/USB Storage Function

Select Enabled if your system contains a Universal Serial Bus (USB) controller and you have a USB keyboard or USB mouse and USB storage.

Settings are: Enabled (default), Disabled.

5-8 Power Management Setup

The Power Management Setup allows you to configure your system to most effectively save energy saving while operating in a manner consistent with your own style of computer use.

Phoenix-AwardBIOS CMOS Setup Utility
Power Management Setup

ACPI Function		[Enabled]	<div></div>	Item Help
Power Management		[User Define]		
Video Off Method		[DPMS]		
Video Off In Suspend		[Yes]		Menu Level >
MODEM Use IRQ		[3]		
Suspend Mode		[Disable]		
HDD Power Down		[Disable]		
Soft-Off by RWR-BTTN		[Instant-Off]		
Wake-Up by PCI card		[Disable]		
Resume by Alarm		[Disable]		
xDate (of Month)Alarm		0		
xTime (hh:mm:ss)Alarm		0: 0: 0		
** Reload Global Timer Events**				
Primary IDE 0		[Disabled]		
Primary IDE 1		[Disabled]		
Secondary IDE 0		[Disabled]		
Secondary IDE 1		[Disabled]		
FDD, COM, LPT Port		[Disabled]		
PCI PIRQ[A-D]#		[Disabled]		
↑ ↓ ← → :Move Enter:Select +/-/PU/PD:Value F10:Save ESC:Exit F1:General Help				
F5:Previous Values		F6: Fail-Safe Defaults	F7:Optimized Defaults	

ACPI Function

This item allows you to Enabled/Disabled the Advanced Configuration and Power Management (ACPI).
Settings are: Enabled (default) and Disabled.

Video Off Method

This determines the manner in which the monitor is blanked.

- DPMS** (default) Initial display power management signaling.
- Blank Screen** This option only writes blanks to the video buffer.
- V/H SYNC+Blank** This selection will cause the system to turn off the vertical and horizontal synchronization ports and write blanks to the video buffer.

Video Off in Suspend

This determines the manner in which the monitor is blanked.

Yes Video will off.

No Video always On.

MODEM Use IRQ

This determines the IRQ in which the MODEM can use.

The settings are: 3(default), 4, 5, 7, 9, 10, 11, NA.

Resume by Alarm

This function is for setting date and time for your computer to boot up. During Disabled, you cannot use this function. During Enabled, choose the Date and Time Alarm:

Date(of month) Alarm

You can choose which month the system will boot up. Set to 0, to boot every day.

Time(hh:mm:ss) Alarm

You can choose what hour, minute and second the system will boot up.

Note: If you have change the setting, you must let the system boot up until it goes to the operating system, before this function will work

5-9 PnP/PCI Configuration Setup

This section describes how to configure the PCI bus system. PCI, or Personal Computer Interconnect, is a system which allows I/O devices to operate at the speed the CPU itself keeps when CPU communicates with its own special components. This section covers some very technical items and we strongly recommended that only experienced users should make any change to the default settings.

Phoenix-AwardBIOS CMOS Setup Utility
PnP/PCI Configurations

		Item Help
Init Display First	[Onboard]	Menu Level >
Reset Configuration Data	[Disabled]	
Resources Controlled By	[Auto(ESCD)]	
×IRQ Resources	Press Enter	
PCI/VGA Palette Snoop	[Disabled]	
↑ ↓ → ← : Move Enter : Select +/- / PU / PD : Value F10 : Save ESC : Exit F1 : General Help		
F5 : Previous Values F6 : Fail-Safe Defaults F7 : Optimized Defaults		

Reset Configuration Data

Normally, you leave this field Disabled. Select Enabled to reset Extended System Configuration Data (ESCD) when you exit Setup if you have installed a new add-on and the system reconfiguration has caused such a serious conflict that the operating system can not boot. The settings are: Enabled and Disabled.

Resource Controlled By

The Award Plug and Play BIOS can automatically configure all of the boot and Plug and Play compatible devices. However, this capability means absolutely nothing unless you are using a Plug and Play operating system such as Windows 95/98. If you set this field to "manual", choose a specific resource by going into each sub menu that follows this field (a sub menu is preceded by a ">").
Settings are: Auto(ESCD) (default) or Manual.

IRQ Resources

Please refer section.

PCI/VGA Palette Snoop

Leave this field at Disabled. The settings are Enabled or Disabled.

5-9-1 IRQ Resources

When resources are controlled manually, each system interrupt is assigned a type, depending on the type of device using the interrupt.

Phoenix-AwardBIOS CMOS Setup Utility
IRQ Resources

IRQ-3 assigned to	[PCI Device]	Item Help
IRQ-4 assigned to	[PCI Device]	
IRQ-5 assigned to	[PCI Device]	Menu Level Legacy ISA for devices compliant with the original PC AT bus specification, PCI/ISA PnP for devices compliant with the Plug and Play standard whether designed for PCI or ISA bus architecture
IRQ-7 assigned to	[PCI Device]	
IRQ-9 assigned to	[PCI Device]	
IRQ-10 assigned to	[PCI Device]	
IRQ-11 assigned to	[PCI Device]	
IRQ-12 assigned to	[PCI Device]	
IRQ-14 assigned to	[PCI Device]	
IRQ-15 assigned to	[PCI Device]	
←→:Move Enter:Select +/-/PU/PD:Value F10:Save ESC:Exit F1:General Help		
F5:Previous Values F6:Fail-Safe Defaults		F7:Optimized Defaults

5-10 PC Health Status

This section shows the status of your CPU, Fan, and overall system.
This is only available when there is Hardware Monitor function onboard.

Phoenix-AwardBIOS CMOS Setup Utility		
PC Health Status		
Vcore	0.86V	Item Help
+ 1.05V	1.02V	
+ 3.33V	3.29V	Menu Level >
+ 5.00V	5.02V	
+ 12.0V	11.84V	
Voltage Battery	3.02V	
System Temp.	55°C	
CPU Temp.	63°C	
↑ ↓ → ← :Move Enter:Select +/-/PU/PD:Value F10:Save ESC:Exit F1:General Help		
F5:Previous Values F6:Fail-Safe Defaults F7:Optimized Defaults		

Current CPU Temperature/Current System Temp/Current FAN1,FAN2 Speed/ Vcore/+1.05V/+3.3V/+5V/+12V

This will show the CPU/FAN/System voltage chart and FAN Speed

5-11 Frequency/Voltage Control

This section is to set CPU Frequency Control.

Phoenix-AwardBIOS CMOS Setup Utility	
Frequency/Voltage Control	
Spread Spectrum	[Enabled]
Item Help	
Menu Level >	
↑ ↓ → ← :Move Enter:Select +/-/PU/PD:Value F10:Save ESC:Exit F1:General Help	
F5:Previous Values F6:Fail-Safe Defaults F7:Optimized Defaults	

Spread Spectrum

This item allows you to set the CPU Host/PCI clock Spread Spectrum.
Settings are: Disabled or Enabled. (default)

5-12 Load Fail-Safe Defaults

When you press <Enter> on this item, you get a confirmation dialog box with a message similar to:

Load Optimized Defaults (Y/N)? N

Press <Y> to load the default values that are factory settings for optimal system operation performance.

5-13 Set Supervisor/ User Password

You can set supervisor password, user password, or both. The differences are:

Supervisor password: You can enter the setup menus and change the options.

User password: You can enter the setup menus but do not have the right to change the options. When you select this function, the following message will appear at the center of the screen to assist you in creating a password.

ENTER PASSWORD:

Type the password, up to eight characters in length, and press <Enter>. The password typed will clear any previous password from CMOS memory. You will be asked to confirm the password. Type the password again and press <Enter>. You may also press <Esc> to abort the selection without entering password. To disable a password, just press <Enter> when you are prompted to enter the password. A message will confirm if you want to disable the password. Once the password is disabled, the system will boot and you can enter Setup menus freely.

PASSWORD DISABLED.

When a password has been enabled, you have to enter it every time before you enter the Setup. This prevents an unauthorized person from changing any part of your system configuration.

Chapter 6

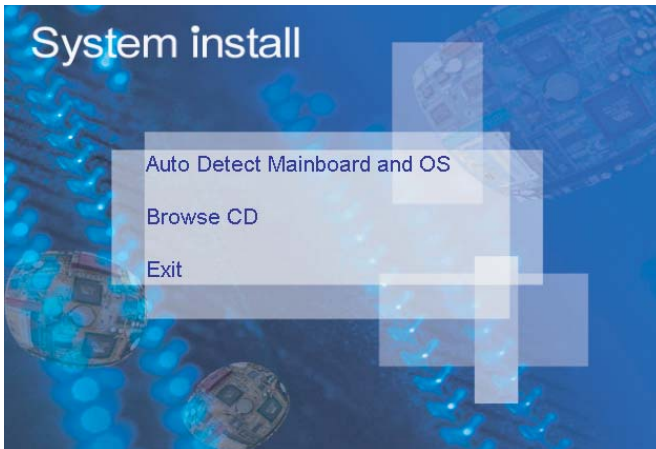
DRIVER INSTALLATION

There is a SYSTEM INSTALL CD disk in the package. This CD has all the drivers you need and some free application programs and utility programs. In addition, this CD also includes an auto-detect software which can tell you which hardware is installed and which driver is needed so that your system can function properly.

We call this auto detect software SYSTEM INSTALL.

SYSTEM INSTALL Supports WINDOWS 2000/XP

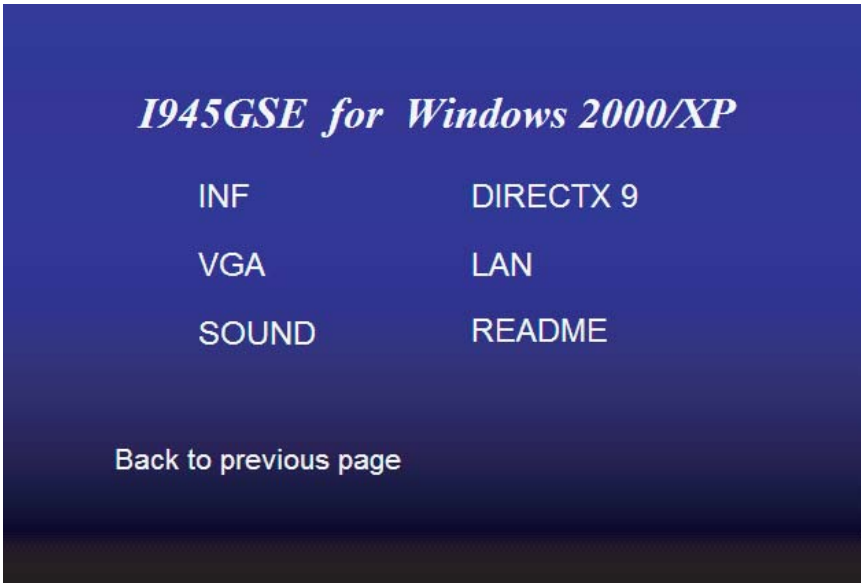
Insert the CD into your CD-ROM drive and the SYSTEM INSTALL Menu should appear as below. If the menu does not appear, double-click MY COMPUTER and double-click CD-ROM drive or click START, click RUN, and type X:\SETUP.EXE (assuming X is your CD-ROM drive).



From SYSTEM INSTALL MENU you may make 3 selections:

- 1 . Auto detect main board and OS Into auto install driver Menu
- 2 . Explore CD to explore the contents of the CD
- 3 . EXIT to exit from SYSTEM INSTALL menu

Auto install driver Menu



- | | |
|------------|---|
| 1. INF | install Intel 945 GSE chipset system driver |
| 2. VGA | install on-board VGA driver |
| 3. SOUND | install VIA HID Audio Codec Audio driver |
| 4. DIRECTX | install DirectX 9 driver |
| 5. LAN | to LAN install driver readme file |

Each selection is illustrated as below:

6-1 INF Install INTEL 945GSE Chipset system driver



1.Click INF when System Install MENU appears.



2.Click NEXT when Chipset Software Install Utility appears.



3.This license agreement appear, click Yes, the Click NEXT.



4.This is Readme information appear, Click NEXT.



5.Click NEXT.



6.Click Finish to restart computer.

NOTE: SYSTEM INSTALL will auto detect file path
X:\driver\INTEL\I945\INF\infinst_autol.exe
This driver supports WINDOWS 2000\XP\Vista

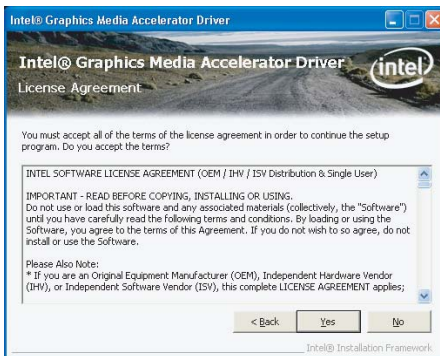
6-2 VGA Install Intel 945GSE VGA Driver



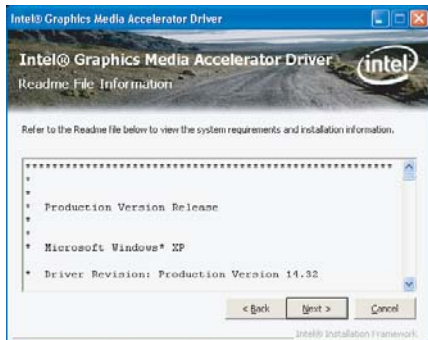
1.Click VGA when System Install MENU appears.



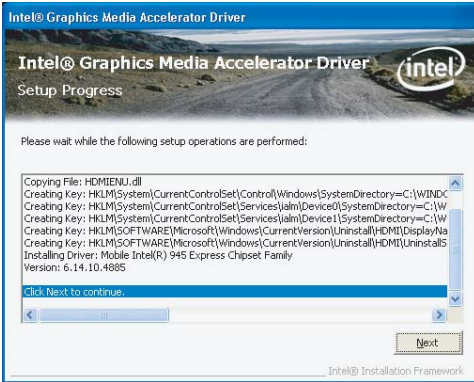
2.Click NEXT when Intel ® Chipset Graphics Driver Software Setup appears.



3.Click NEXT when Intel ® Graphics Media Accelerator Driver Software appear.



4.Click YES, This Announce CopyRight .



5.Click NEXT.

NOTE: The path of the file

For WINDOWS XP/2000

X:\driver\INTEL\945\VGA\win2k_xp\Setup.exe

For WINDOWS Vista

X:\driver\INTEL\945\VGA\winvista\Setup.exe

For WINDOWS Vista 64

X:\driver\INTEL\945\VGA\winvista64\ Setup.exe

For WINDOWS XP 64

X:\driver\INTEL\945\VGA\winxp64\ Setup.exe



6.Click FINISH to Restart Computer.

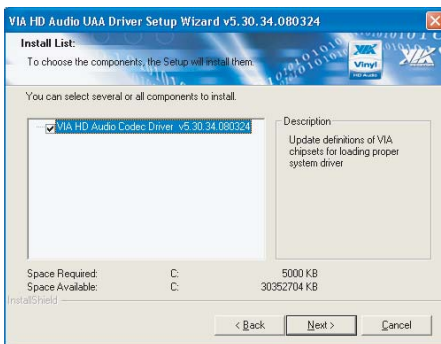
6-3 SOUND Install VIA HID Audio Codec Driver



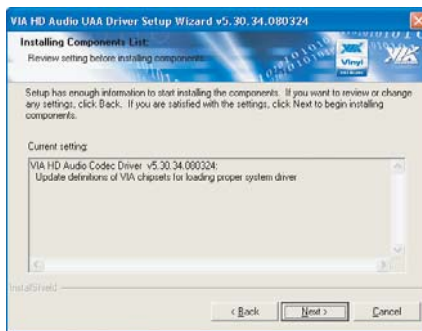
1.Click **SOUND** when System Install MENU appears.



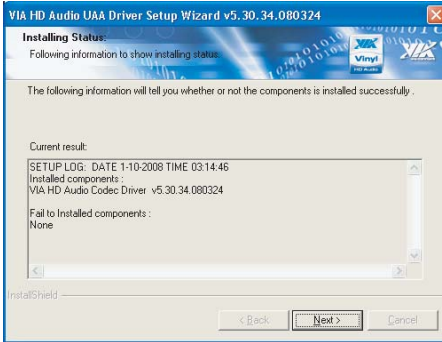
2.Click **Next** .



3.Click **Next** .



4.Click **Next** to begin installing driver.
The program might be few minutes.



5.Click NEXT.



6.Click FINISH to Restart Computer.

NOTE: The path of the file For 2000 \ XP
X:\driver\INTEL\I945\SOUND\setup.exe

6-4 HOW TO UPDATE BIOS

Under DOS Mode

STEP 1. Prepare a bootable disc.

(Storage device could be USB FDD, CF card, or USB pen drive.)

STEP 2. Copy utility program to your bootable disc. You may copy it from DRIVER CD
X:\Dirver\bios\AWDFLASH.EXE or download it from our web site.

STEP 3. Copy the latest BIOS for your LEX motherboard from our web site to
your bootable disc.

STEP 4. (Here take 3I270C as an example, please enter your motherboard's name)
Insert your bootable disc into X: (X could be C:, A: or others.

It depends on which type of storage device you use.)

Start the computer and type

X:\Awdflash 3I270Cxx.BIN /SN/PY/WB/CP/CD/CC/R

3I270Cxxx.BIN is the file name of the latest BIOS. It may be 3I270CA1.BIN or
3I270CA2.BIN, etc. Please leave one space between .BIN & /SN/PY/WB/CP/CD/CC/R

By 945GSE series mainboard, pls type

X:\Awdflash 3I270Cxxx.BIN /SN/PY/WB/CP/CD/CC/R

SN : don't save the current BIOS data

PY : renew the current BIOS data

WB : always programming Boot Block

CP : clear PnP(ESCD) data after programming

CD : clear DMI data after programming

CC : clear the current CMOS data

R : restart computer

STEP 5. Press ENTER and the BIOS will be updated,
Computer will restart automatically.

Appendix A: Power Consumption Test

Condition

Item	Spec
CPU	N270 1.6GHz
SDRAM	DDR2 533 / 1GB
Operating System	Windows XPP/SP3
Test Program	3D Mark 2001SE
HDD 3.5" SATA	Standard HDD
HDD 2.5" SATA	Slim Type HDD

Test Result for reference !

Hard Disk	Power off	Start up		Operation Maximum	Shut down Maximum
		Maximum	Stable		
Standard HDD	0.05A	2.83A	1.28A	1.77A	1.47A
Slim Type HDD	0.05A	1.38A	0.95A	1.53A	1.16A

The power consumption depends on your device choice!

Appendix B: Resolution list

640 x 480 x (256 / 16bit / 32bit)
800 x 600 x (256 / 16bit / 32bit)
1024 x 768 x (256 / 16bit / 32bit)
1152 x 864 x (256 / 16bit / 32bit)
1280 x 600 x (256 / 16bit / 32bit)
1280 x 720 x (256 / 16bit / 32bit)
1280 x 768 x (256 / 16bit / 32bit)
1280 x 800 x (256 / 16bit / 32bit)
1280 x 960 x (256 / 16bit / 32bit)
1280 x 1024 x (256 / 16bit / 32bit)
1400 x 1050 x (256 / 16bit / 32bit)
1440 x 900 x (256 / 16bit / 32bit)
1600 x 900 x (256 / 16bit / 32bit)
1600 x 1200 x (256 / 16bit / 32bit)
1920 x 1080 x (256 / 16bit / 32bit)
1920 x 1200 x (256 / 16bit / 32bit)